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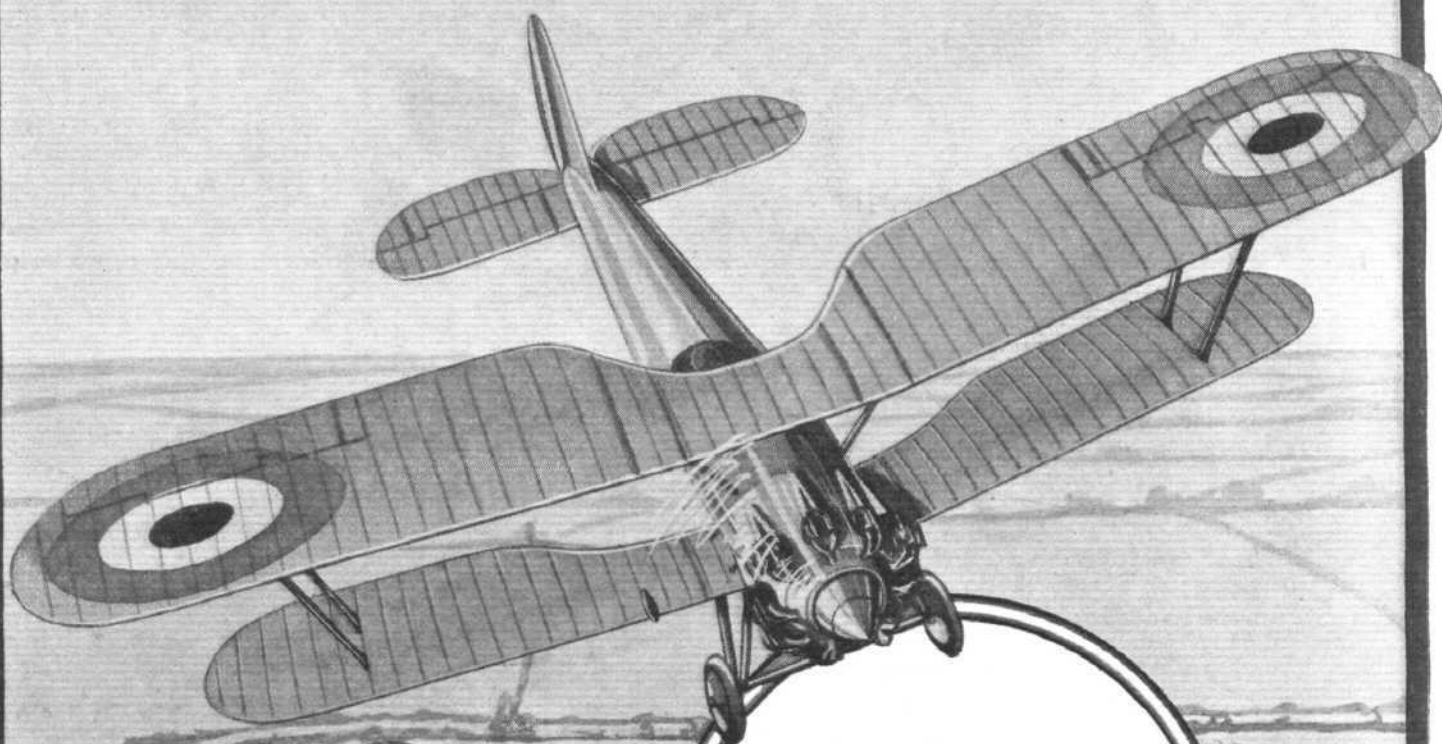
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CONTENTS

	PAGE
Editorial Comment	
Handicapping British Designers	1319
Season's Greetings and a Personal Announcement	1320
The Long-Distance Record	1320
R. 100	1323
Sikorsky Brake	1325
Aeroplane Wheels and Tyres	1326
Private Flying and Club News	1327
Airisms from the Four Winds	1330
Air Transport	1331
Correspondence	1333
In Parliament	1335
De Havilland Dinner	1336
Westland Social	1336
Royal Air Force	1337
Personals	1337
Imports and Exports	1338

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1929.

Dec. 20 Lecture by Sir Philip Sassoon, on "Flight to India and Back," at the Wigmore Hall.

Dec. 27 Dinner Dance at Hanworth Club.

1930

Jan. 1 Film depicting the Flying History of M. Bleriot, at Hanworth Club.

Jan. 3 Dinner Dance at Hanworth Club.

Jan. 22 "The Strategical Mobility of Air Forces," Lecture, by Gp.-Capt. C. L. Courtney, before Royal United Service Inst.

Mar. 5 "Air Co-Operation with Mechanised Forces," Lecture, by Wing-Com. T. L. Leigh-Mallory, before Royal United Service Inst.

June 28 Royal Air Force Display, Hendon.

Sept. 6-28 Aero Exhibition, Stockholm, Sweden.

Nov. Paris Aero Show

EDITORIAL COMMENT



It is the fashion in some quarters to belittle the work of British aircraft designers and constructors, and to compare their products with aircraft produced abroad, not infrequently to the detriment of the former. And, *superficially*, there is at times reason to do so. It has always been, and always will be, the policy of FLIGHT to be perfectly fair to everyone, and if a foreign machine is produced which appears to us to represent progress in some respect or other, we have never hesitated to publish a description and particulars of it. FLIGHT is regarded by those who produce it, and, we venture to think, by our thousands of foreign readers, as something more than a national journal. Aviation throughout the world is our subject, and were more space available every week we should not hesitate to devote much of it to more foreign aviation matters. But that is not to say that we would, in so doing, make it our policy to hold up everything done abroad as representative of all that is good and unique. When examining the particulars of any aircraft, be it British or foreign, we endeavour to form an opinion of its merits, and in order to do so it is naturally necessary sometimes to make comparisons with existing aircraft of which the data are known.

Some years ago we published in our monthly technical supplement THE AIRCRAFT ENGINEER, a translation of an article by the German Professor Everling, in which three "figures of merit" were established: The "High-speed Figure," the "Distance Figure" and the "Altitude Figure." When reliable information is available concerning a machine, these three figures of merit enable one to compare the performance of a machine with the known performances of others, and thus to form some idea of the approximate "goodness" of the new type. These three figures are not, however, entirely sufficient in themselves, and in point of fact Professor Everling has recently written for us another article

in which a fourth figure is evolved. We have not been able to find the time yet for translating this article, but we will endeavour to do so, and to publish it at the first opportunity.

In the meantime, it has seemed to us that the figures of wing loading and power loading do, when available, form at least a guide to the characteristics of any aircraft, quite apart from any question of performance, claimed or attained. In making a comparison a week or two ago between the famous Dornier Do.X and certain British flying-boats, we compared the ratios of gross and tare weight, and pointed out that in the Do.X Dr. Dornier had been compelled to resort to very heavy loadings in order to attain the great size of his flying ship.

Our Editorial Comment has drawn from Mr. C. C. Walker, of the De Havilland Company, a letter which is printed in our Correspondence columns this week, in which he calls attention to some of the many handicaps under which British designers are working, and in which he pleads for an extension of the method of comparison which we have used. Mr. Walker himself helps us along the road a good deal by supplying two curves which represent the limitations imposed by the take-off and climb requirements demanded of British aircraft.

If these curves are examined, it will be found that they exclude very many foreign aircraft; in fact, probably the majority. Whether or not the restrictions are justifiable would in itself form a very good subject for discussion. A regulation demanding a certain minimum get-off is certainly no guarantee as regards safety. A pilot has only to attempt to get out of a small enough field to meet with disaster, whatever certificate his machine possesses, and the Air Ministry regulation cannot save him. He must use his own judgment. We are not, personally, in favour of the heavy loadings employed on some foreign machines, and would not advocate them for general use. There may, however, be circumstances in which it is necessary to carry a large pay load at the sacrifice of take-off, and an official restriction which precludes this being done is obviously an evil which seriously handicaps the British designer. Probably the root of the whole matter is to be found in the fact that those who are responsible for laying down the regulations and enforcing them are not concerned with the operation of the aircraft afterwards.

However, this subject of official restrictions is one which should be discussed separately. What we wish to draw attention to at the moment is the existence of such regulations (the take-off and climb are only two out of many), and the fact that in making comparisons between British and foreign aircraft the restrictions must be kept in mind if unfairness to British designers is to be avoided. The manufacturer of British aircraft has more than

enough obstacles to overcome as it is, and to blame him for having to work under circumstances that are entirely beyond his control is unfair to say the least of it. If the British aircraft manufacturer is to be enabled to compete on equal terms with the foreigner, many if not all of the existing restrictions will have to be removed, and it will have to be left to his regard for the reputation of his products to ensure that unsafe aircraft are not put on the market.

Mr. Walker rather takes us to task for having been a little unfair to Dr. Dornier. That was the last thing we desired to do, and actually, we stated that "This is not in any way meant as a criticism of the Do. X. On the contrary, one is full of admiration for a machine which can get off the water with such loadings." Our object was to attempt a comparison which should give a truer picture of what the Do. X represents, and to point out that if British designers were given a free hand in going to such high wing and power loadings, a better ratio of gross to tare weight could be obtained in the smaller machines.

❖ ❖ ❖

In wishing one and all of our readers, at home and overseas, a Very Happy Christmas and a Prosperous New Year, we would like to say how gratified the Editor and the staff of FLIGHT are at the greetings and congratulations received, and still arriving from all parts of the world, upon the completion of FLIGHT's twenty-first year of publication with our next issue, December 27.

In this connection, we propose to publish, on January 3, 1930, a special 21st birthday number, in which we will give a selection of the many messages already to hand from all over the world. The January 3 issue will also contain reproductions of photographs of a large number of early machines, and will thus serve to give an idea of the progress made during the 21 years that have passed since the first number of FLIGHT made its appearance, on January 2, 1909. The amount of correspondence which we have received since the publication of a letter from Mr. Douglas Thorburn suggesting an "Old Timers' Number" of FLIGHT indicates how great is the interest in the earliest days of flying, and although our Birthday number is not devoted exclusively to "the old days," readers will find much material relating to that period to interest them.

Various phases of the progress of flying will be reviewed by well-known writers, and altogether, we believe that our January 3 issue will be one of quite unusual interest in forming a link between those who have but recently become interested in aviation and the pioneers of the early days who, by their unselfish work, made possible aviation as we know it to-day.

◆ ◆ ◆ ◆

THE LONG-DISTANCE RECORD

The Fairey-Napier Monoplane makes a successful start

ONCE more the much-enduring Squadron Leader A. G. Jones-Williams and Flight Lieut. N. H. Jenkins have started off in the Fairey (Napier) monoplane on an attempt to win for Great Britain the record for a non-stop long-distance flight.

The first attempt made by these two pilots in this machine was a flight to India last spring. The record at that time was held by the Italian pilots Capt. Arturo Ferrarin and the late Major del Prete, who flew in a Savoia flying-boat from Italy to

Brazil, a distance of 4,460 miles. The Fairey monoplane left Cranwell on April 24, and landed at Karachi on April 26. To beat the record it would have been necessary for the machine to have continued its flight on to the aerodrome at Bangalore. But a strong head wind in the neighbourhood of Baghdad had used up too much of their petrol, and had they persisted in their attempt they would probably have had to land in the darkness among the Ghats mountains of southern India. Fortunately the pilots were not so ill-advised as to

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- 1922 A Napier-engined Supermarine flying-boat regained the Schneider Trophy for Great Britain at a speed of 149 m.p.h.
- 1922 A Napier-engined Gloster aeroplane won the Aerial Derby. Speed 180 m.p.h.
- 1923 A Napier-engined Gloster aeroplane won the Aerial Derby. Speed 192.4 m.p.h.
- 1926 The first non-stop crossing of South Atlantic Ocean carried out by Commandante Franco flying a Dornier flying-boat with two Napier engines.
- 1927 Schneider Trophy won by a Napier-engined Supermarine-Napier seaplane flown by Flight-Lieut. S. N. Webster, A.F.C. Speed 281.669 m.p.h.
- 1928 Capt. H. S. Broad, flying D.H. Hound, fitted with Napier engine, secured three World's speed records whilst carrying loads of 500 and 1,000 kilograms.
- 1928 The greatest formation flight ever carried out was made with four Supermarine-Napier Southampton flying-boats, each fitted with two Napier engines. The machines flew from England to Australia, round Australia and back to Singapore, covering 180,800 engine miles without mechanical trouble.
- 1929 The first non-stop flight from England to India was carried out with a Fairey monoplane fitted with Napier engine. 4,130 miles in 50 hrs. 38 mins.

- Land** — 1929 The highest speed ever attained on land was made by Major Sir Henry Segrave when he drove his Irving-Napier car over one mile at the amazing speed of 231.36 m.p.h.
- Capt. Malcolm Campbell set up world's land speed records at Verneuk Pan with his Napier Arrol-Aster as follows :—over 5 miles, speed 211 m.p.h. ; over 5 kilometres, speed 216.53 m.p.h. They both used Napier engines

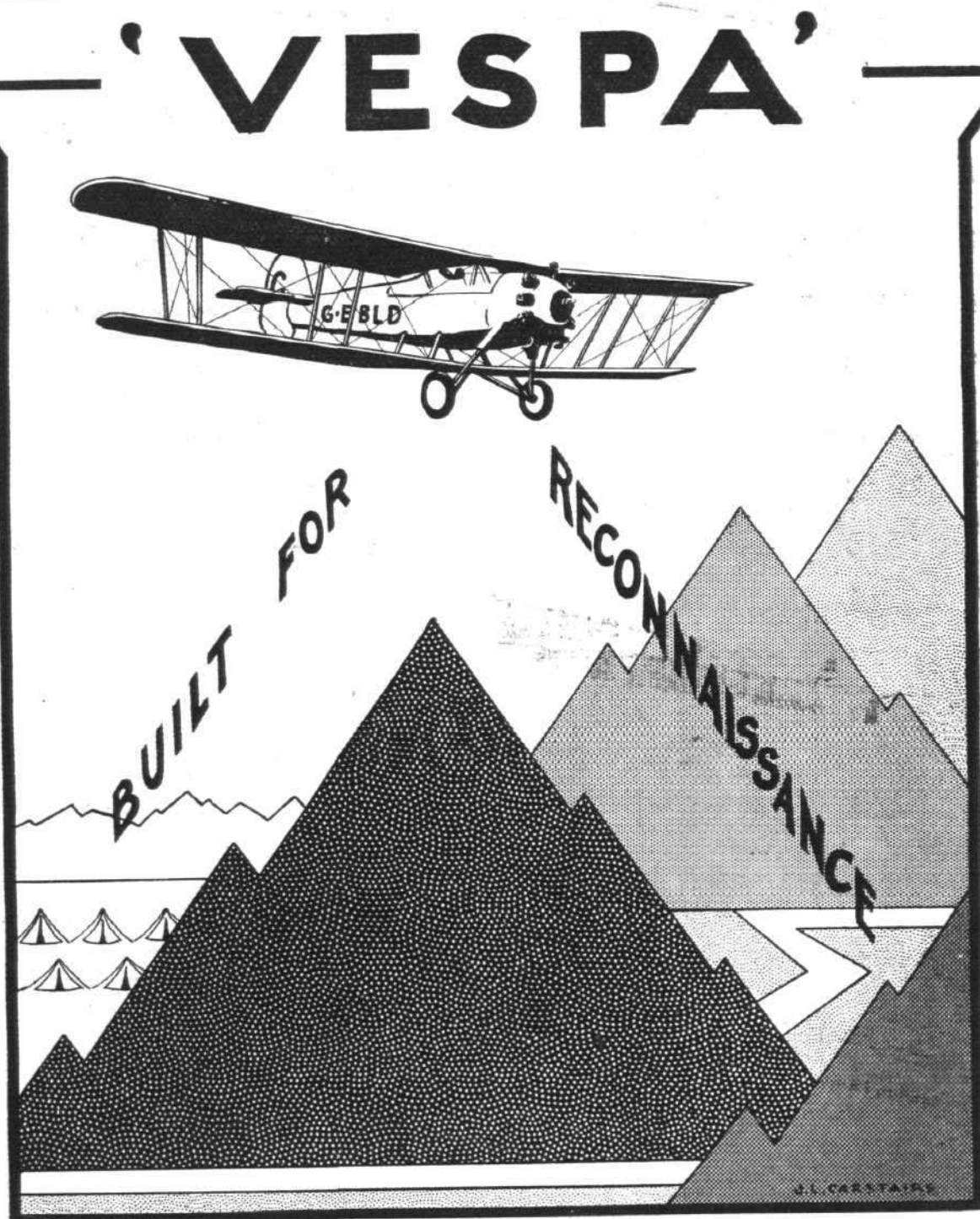
- Water** — 1929 The world's motor-boat speed championship was won at Miami by Major Sir Henry Segrave, driving Sir Charles Wakefield's Napier-engined "Miss England."
- Sir Henry Segrave at the Lido with the same boat made six runs over the measured mile, averaging a speed of 92.8 m.p.h.
- At this meeting, competing against the best from Italy and America, Sir Henry Segrave won all trophies, including the Duke of Piedmont's cup and Count Volpi's cup.

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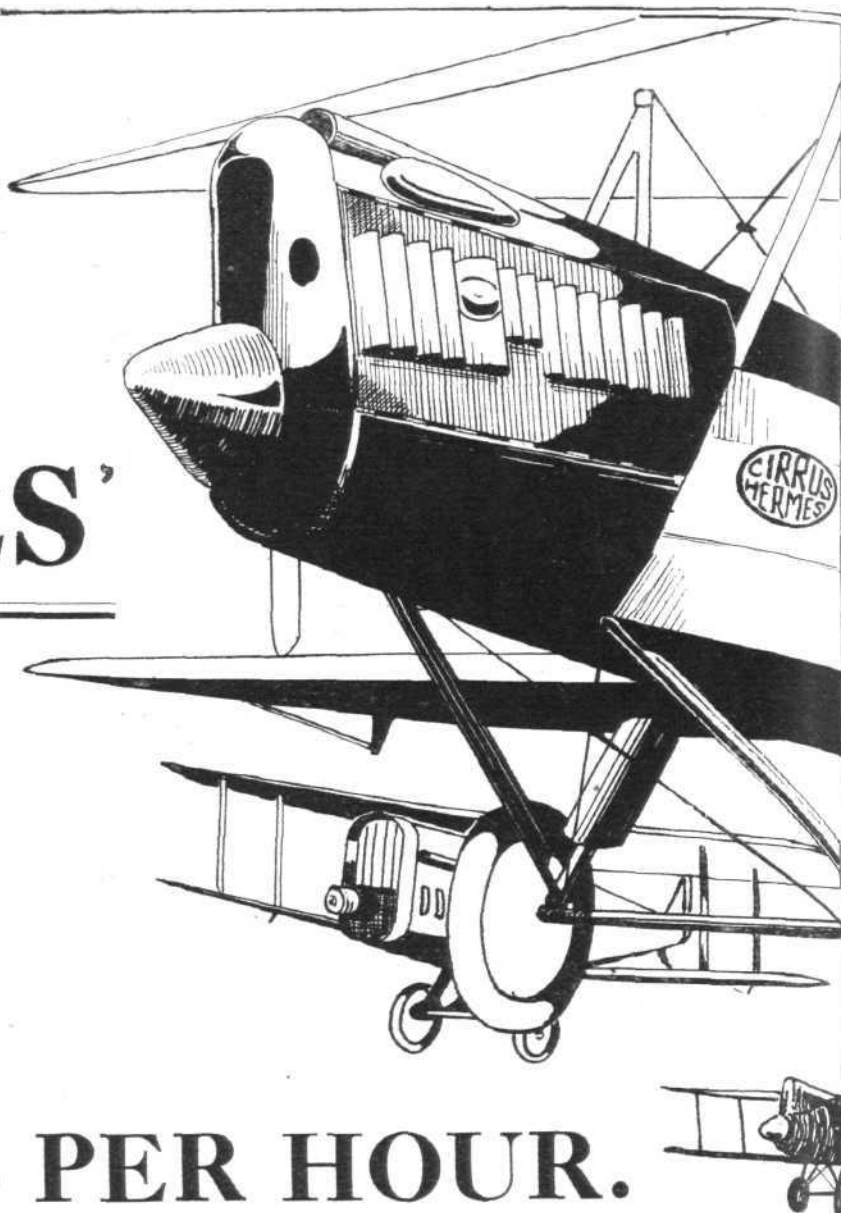
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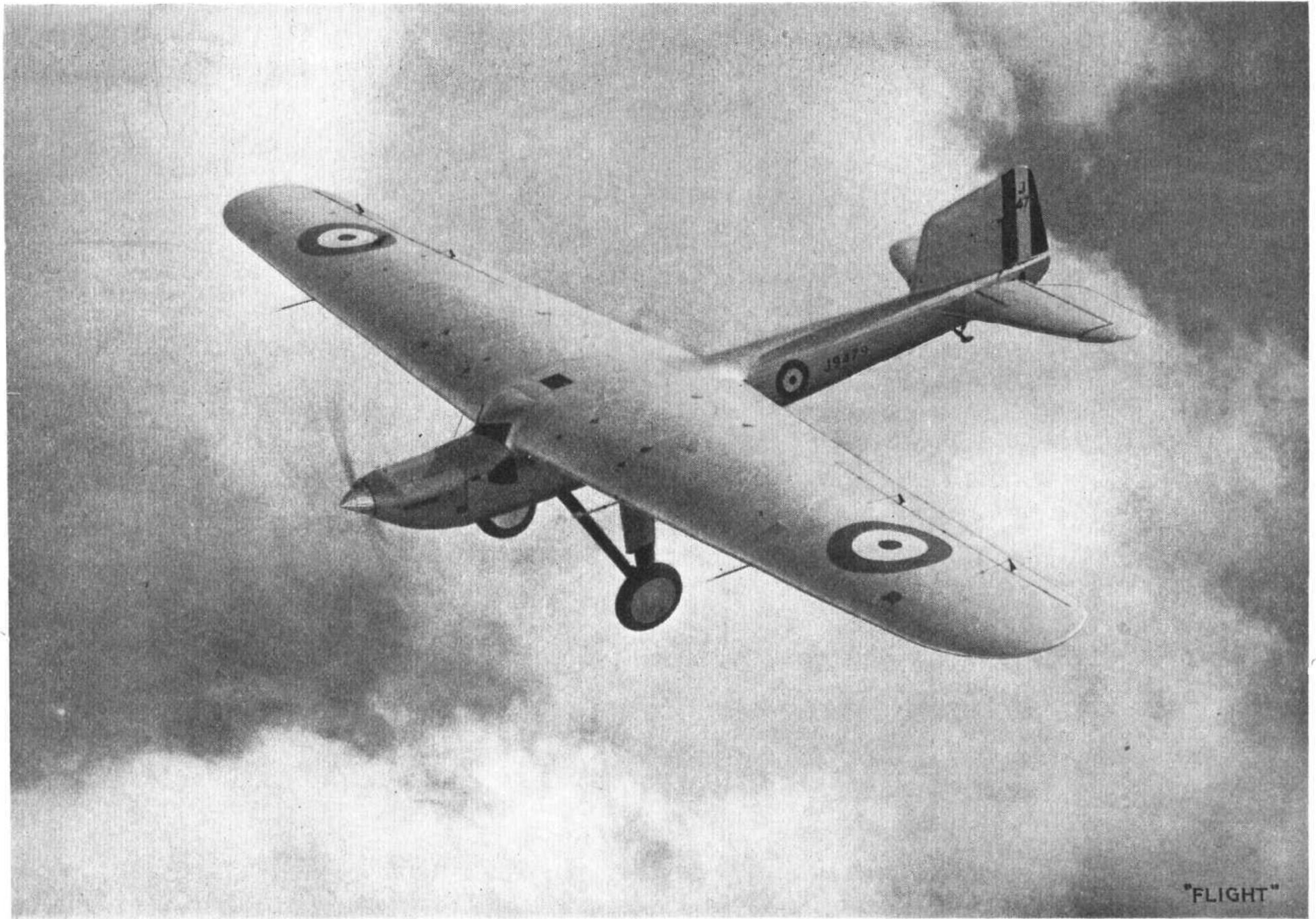
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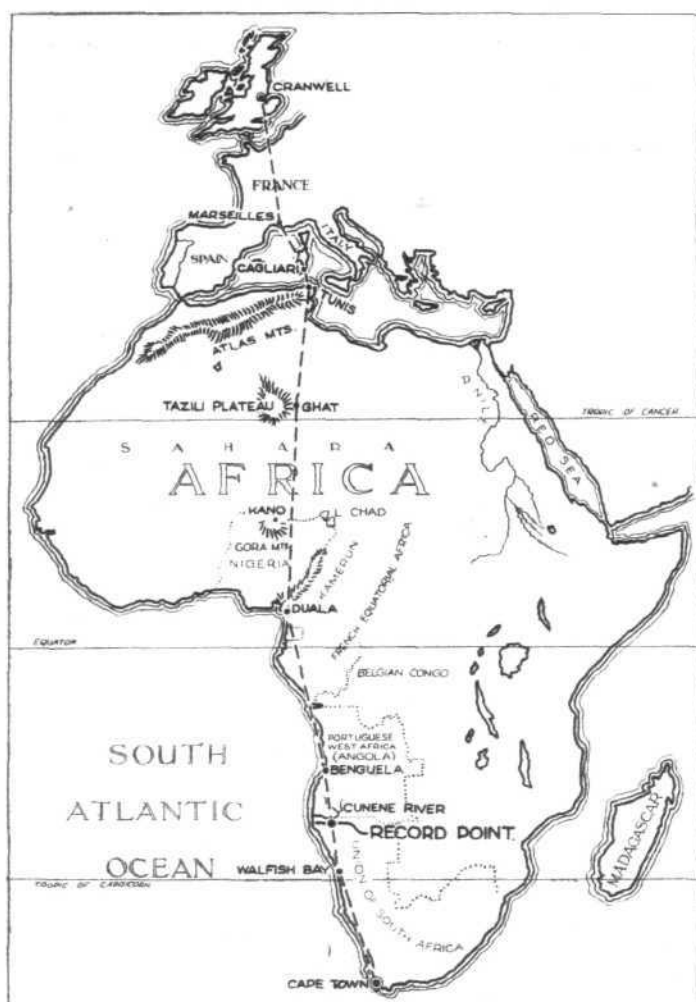


The Fairey (Napier) Monoplane in which Squadron-Leader Jones Williams and Flight-Lieut. Jenkins are attempting to fly non-stop from Cranwell to Capetown.

take this risk, and after spending 50 hrs. 38 mins. in the air, they landed at Karachi, with 80 gallons of petrol still in their tanks.

Since then, the two French pilots Costes and Bellonte, have established a new world's record by a flight from Paris to He Louang Kiang in Manchuria, a distance of 7905.140 km. (4912.11 miles) and by the rules of the F.A.I., this will stand until beaten by 100 km. (62.14 miles). The Fairey monoplane will therefore have to travel a minimum of 4,975 miles to beat the record.

On its return from India the monoplane was sent back to the Fairey works at Hayes for minor modifications, the only important change being the fitting of a fin and rudder of new design which enable the machine to be flown feet-off. A



new adjustable seat was fitted in the pilot's cockpit so that each pilot should be as comfortable as possible during his spells at the joystick. The pneumatic bed has been removed from the navigator's compartment, as on the flight to India neither pilot found himself able to sleep during his turns off duty. Time was fully occupied with navigating, checking petrol consumption, writing up the log, etc. In place of the bed there is now a deck chair with padded rests for neck and knees. A new Napier 530 h.p. engine has been installed. The machine is fitted with a wireless transmitting set which transmits on a 33.71 m. wave length. There is no receiving set on board. The runway at Cranwell aerodrome has also been improved. On the start for India the monoplane, with an all-up weight of about 16,000 lbs. took off against a wind of 15.26 m.p.h. in a run of 1,235 yards. Since then the first 200 yards of the runway has been asphalted and a further 1,600 yards has been levelled and rolled. On the present flight the machine carries about 1,000 lb. more fuel, giving a total weight of 17,000 lbs.

The Route

The monoplane took off from Cranwell at 7.50 a.m. on Tuesday, December 17. The same day at 4 p.m. they were signalled as 50 miles to the north of Sardinia. Since then up to the time of going to press no further news of them has been received. This may be due to a break-down in their wireless apparatus. The route is described below on the supposition that nothing worse than this has happened.

The route which the pilots decided to follow is very different from the usual course by which Lieut. Bentley and

others fly to and fro between Croydon and Capetown. The Fairey set out to follow an almost straight great-circle course. Starting from Cranwell this would take them across France to Marseilles, where the chances of clear weather are naturally better than in Northern Europe. The pilots then swung a bit to the east of the direct route, over Sardinia to Tunis, in order to avoid the Atlas mountains. The chief reason for the early start was to pass the eastern end of this range in daylight. The alternative was to start late in the day and to reach Tunis the next morning.

Night would seem to be a very suitable time for flying over the Sahara. The scenery looks just as attractive to most eyes by night as it does by day. The meteorologists hope that on the Sahara stage a north wind will help the machine along. On the second day the machine should have reached the coast at Duala in the Kameruns after steering clear of the hills in Nigeria. Doubtless the feeling that the Union Jack is flying down below would cheer the pilots as they passed over Nigeria, as until they reached the mandated territories of the Union of South Africa this would be the only British country which they would cross. Probably they would not see the aerodrome at Kano, the terminus of several long flights by the R.A.F. squadrons in Egypt. In any case the Fairey monoplane started out without any interest in aerodromes which lie between Cranwell and Capetown.

From Duala onwards the selected route roughly follows the coast, though the machine would make as straight a course as possible, passing inland when the coast line curves out to the west.

The second night was to be spent over the French Kamerun territory, where heavy thunderstorms are common occurrences. There is, however, a good chance of the nights being much calmer than the days.

One can imagine the relief of the pilots on crossing the Congo at the town of Banana and passing into Portuguese Angola, as from that point onwards there would be little chance of bad weather. It is now summer in the southern half of the African Continent. Along the greater part of the West African coast the winds near the surface blow from the south or south west, but an altitude might be found where the winds would help them for considerable distances.

The southern boundary of Angola is the Cunene River. Once across that, the territories of the Union of South Africa are entered. The river constitutes another important point on the flight, for some 30 miles to the south of it is an unmarked spot, which is 4,975 miles from Cranwell aerodrome. Reaching that point means the establishment of a new world record for Great Britain.

All this country in South West Africa is very waterless, and a most undesirable place to choose for a forced landing.

The Pilots

Squadron Leader A. G. Jones-Williams, M.C., is an officer for whom the R.A.F. is indebted to the Royal Military College at Sandhurst. The name Jones-Williams suggests a Welsh origin, and this officer joined the Welsh regiment in 1916. He was, however, born in British Columbia, and was at school at Haileybury. In 1917 he was seconded to the R.F.C., and served in France with No. 29 Squadron. His conspicuous gallantry in the air won him the Military Cross and Bar, and also the Croix de Guerre. Later he served with No. 65 Squadron. In 1919 he transferred permanently to the Royal Air Force with the rank of Flight Lieutenant. Since the Armistice his service has been at Home, and before being detailed for this special duty he was Squadron Leader of No. 23 Fighter Squadron at Kenley.

The history of Flight-Lieut. N. H. Jenkins, O.B.E., D.F.C., D.S.M., is strangely different from that of his chief. It shows from what widely different sources first-class pilots may be drawn, and what different kinds of training go to their production. Flight-Lieut. Jenkins, a Southampton man, joined the R.N.A.S. as a mechanic in 1915, but in 1917 he became an observer with the rank of Sub-Lieutenant. It was as an observer that he served with No. 202 Squadron in France, and on submarine patrol in Home waters. It was as an observer that he won his decorations and was wounded. It was not until after the war that he learnt to fly an aeroplane. He then had only a short service commission in the R.A.F., and it almost makes one shudder to think that such a pilot might have been lost to the service. However, in 1923 Jenkins was given a permanent commission. In the meantime he had been serving with the Air Force of Occupation on the Rhine and in Iraq. Since then he has been a test pilot at Martlesham—surely a most unexpected honour for one who joined as a mechanic and did all his war service as an observer!



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FAIREY AIRCRAFT

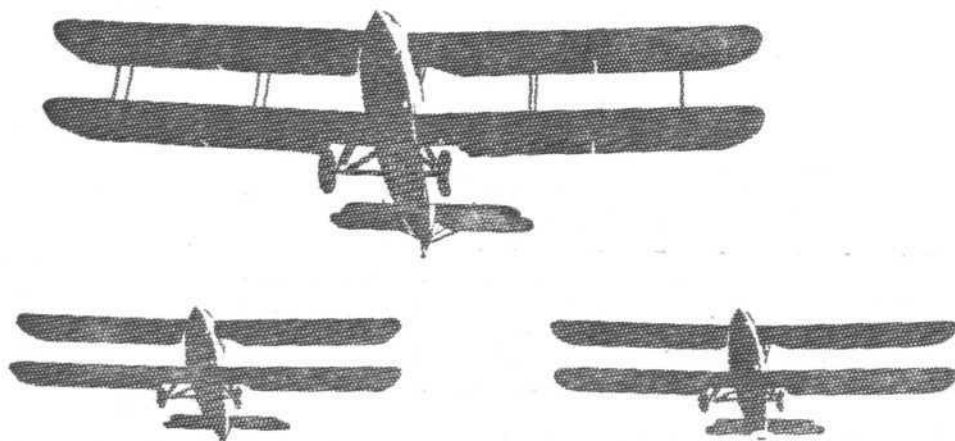
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H.M. AIRSHIP R.100

DURING the gales R.100 remained safe in her shed at Howden, but with the advent of the anticyclone she promptly emerged. On Monday, December 16, everything was got ready and soon after 4 a.m. the party of 500 soldiers who were to form the walking party arrived by lorry at Howden. The north door of the shed was then opened, and the Condor engines were run up. Major G. H. Scott, Squadron-Leader Booth (Captain of the ship), Capt. G. F. Meager (first officer), Sir Dennistoun Burney, Mr. B. N. Wallis (the designer), Squadron-Leader Colmore, and other experts were on board. Altogether the ship carried 68 souls.

The soldiers were arranged in 12 parties, four of which manned the control car and the three engine cars, while the others took charge of guy ropes. The ship was brought out of the shed tail first. The party began to walk her out at 7.22 a.m. and in six minutes she was safely clear of the shed. She was wheeled round until she faced south-west. The walking party then let go, ballast was dropped, and R.100 soared up into the air and commenced her active career. She actually commenced to fly at 7.53 a.m.

There was a favouring breeze of from 6 to 9 m.p.h., and the airship flew slowly towards York, which was reached at 9 a.m. She spent a quarter of an hour over the capital of her native county, and then headed for Bedfordshire. Major Scott, of course, was testing her "feel" in the air. He found that she rode as satisfactorily as R.101 has done, thus vindicating the policy of the $5\frac{1}{2}$ to 1 fineness ratio. Possibly some of the critics are grievously disappointed to find that neither airship wants to stand on her tail or loop the loop. The two ships, however, handle differently. This was to be expected, as, apart from the minor difference in the dimensions, the design and position of the fins is quite different in the two ships. Moreover, R.100 has all her six engines placed well aft. With the Condors, it was found possible to fly R.100 at a slower speed than is possible with R.101, but when throttled down to 20 m.p.h., it was found that she had not much steering way.

The journey was made at an air speed of 55 to 58 m.p.h., and the following breeze brought the ground speed up to about 64 m.p.h. The journey of 140 miles was covered in a little over two hours.

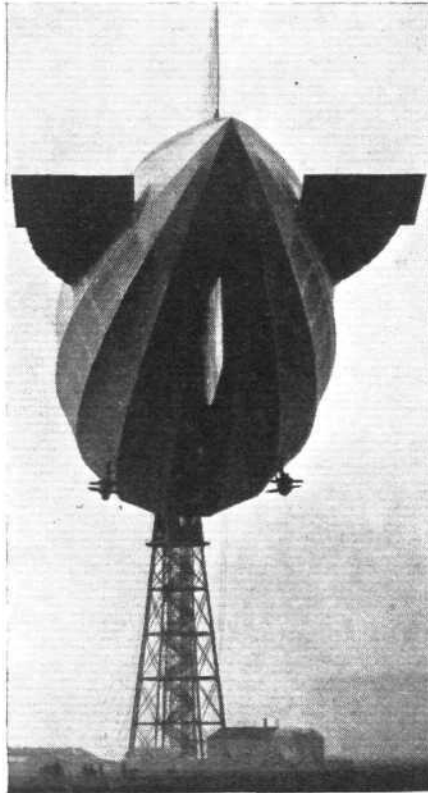
The ship cruised over Bedford for a while, and then approached the mooring tower. At first she came in too slowly and without sufficient control. The second approach was successful, and at 12.45 the mooring cable was dropped. By 1.35 p.m. the ship was made fast to the head of the tower, and then the roller weights were secured to her tail.

As the airship approached Cardington the fabric on the underside of the hull and on the lower vertical fin was observed to be flapping slightly in the slipstream of the propellers; but Major Scott said that he had not had any reports of anything abnormal from the observers stationed at different points about the ship. He was very pleased with the general behaviour of the airship on her maiden flight.

Next day, Tuesday, December 17, another trial flight of four hours was made. The airship slipped from the tower at 10 a.m. and cruised for four hours in the neighbourhood of Bedford. The objects of the flight were general testing in manoeuvre at different speeds and special observation of the fabric underneath the hull and on the lower vertical fin, which had been seen flapping on the first flight. Great attention was paid to this point, for not only was it carefully observed from inside, but special observers with powerful binoculars were stationed at various points on the ground. During the flight one of the crew climbed down the ladder inside the lower vertical fin and carried out repairs to the fabric. There is room inside each of the fins for a man to move about, but the operation is easier in the vertical fins than in the horizontal ones. It will be interesting to learn whether this behaviour of the fabric is due to the comparatively small distance between the fin and the rear engine car. After the flight Maj. Scott naturally said that he could not make any statement until he had formed an

opinion after studying the reports of all the observers.

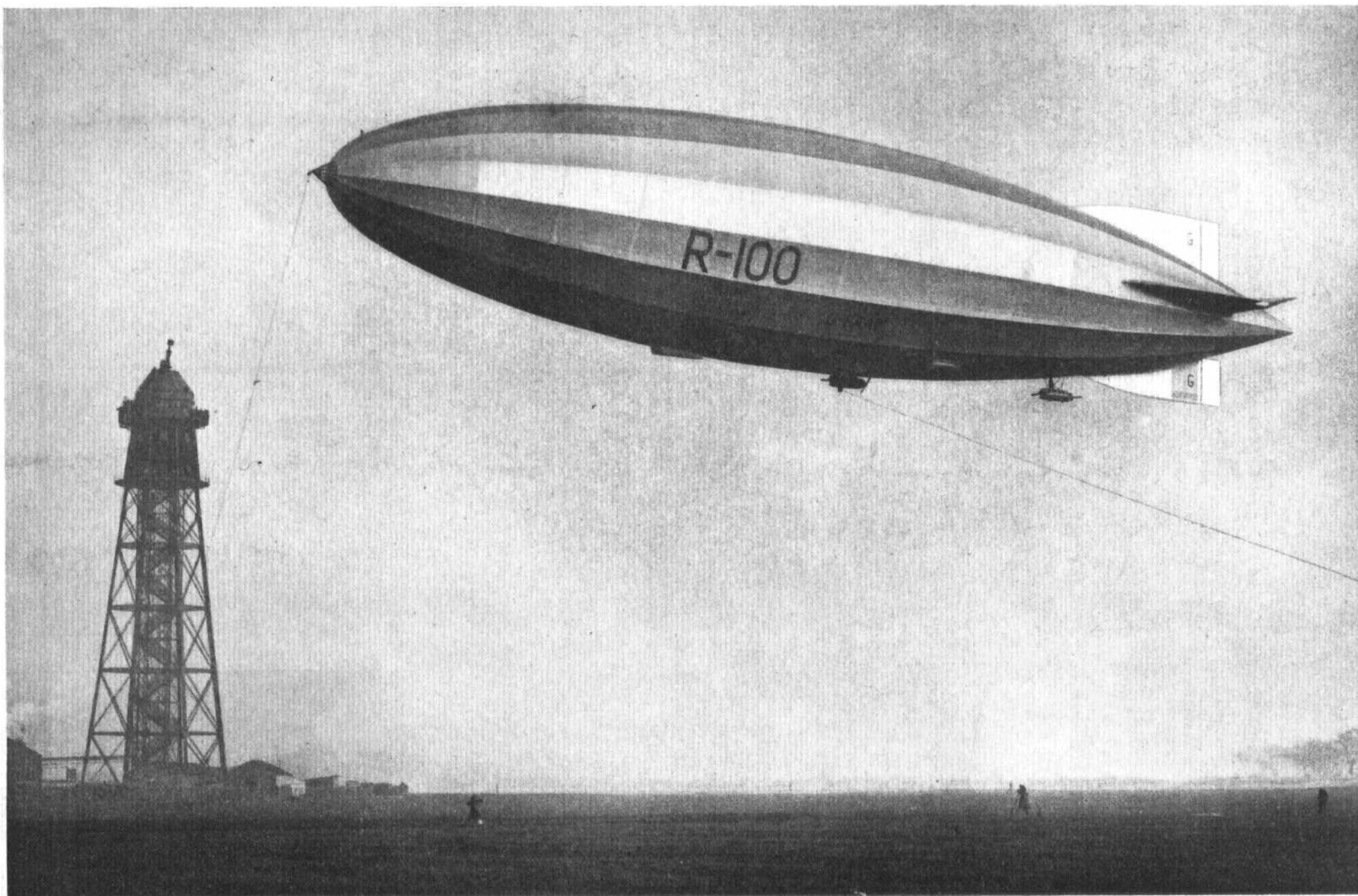
Aerodynamically, the airship gave great satisfaction. All the six Condor engines were run at 1,400 r.p.m., and the ship developed a speed of about 57 to 58 miles an hour. No attempts at developing full speed were made. This was not to be expected on the second flight of the ship. But tests in turning were made, and the ship answered her controls satisfactorily. The results of the first two flights will be carefully studied and analysed before further flights are made.



MOORED—

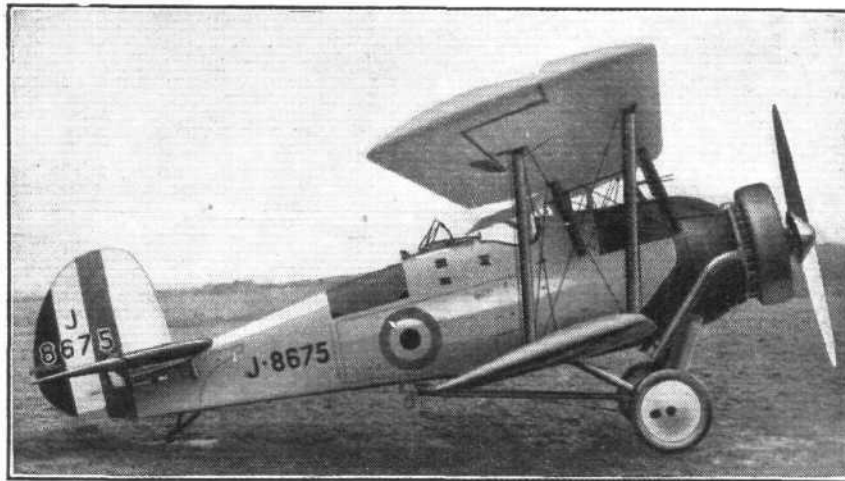


—AT CARDINGTON: On the left, The nose made fast. On the right, Sir Dennistoun Burney and Major G. H. Scott. (FLIGHT Photos.)



R 100 being hauled down by the tower winch at Cardington. Note the angle of the movable arm in the head of the tower. When the mooring coupling has been made fast, this arm is locked in a vertical position. (FLIGHT Photo.)

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PERFORMANCE FIGURES

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		Plain Engine.	Geared Engine.		
Approx. total weight		4000 lbs.	4115 lbs.	Time to	5000 ft. 5.25 minutes
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Speed at ground level		143.5 m.p.h.	149 m.p.h.	"	15000 ft. 26 "
		231 km.p.h.	240 km.p.h.		10000 mtrs. 3.5 "
"	5000 ft.	139.5 m.p.h.	145 m.p.h.	"	3000 " 12.5 "
"	10000 ft.	134 m.p.h.	140 m.p.h.	"	5000 " 34 "
"	15000 ft.	125 m.p.h.	131 m.p.h.	Absolute Ceiling	
"	1000 metres	226 km.p.h.	236 km.p.h.	19000 ft. 19100 ft.	
"	3000 metres	216 km.p.h.	225 km.p.h.	5800 metres 5830 metres	
"	5000 metres	193 km.p.h.	204 km.p.h.	Service Ceiling 17300 ft. 17700 ft.	
		Maximum allowable R.P.M. 2200. Normal R.P.M. 2000		5280 metres 5400 metres	

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THE SIKORSKY MULTIPLE DISC BRAKE

An American Device Easily Fitted to Aircraft

WE have received from the Sikorsky Aviation Corp. of Bridgeport, Conn., the following description of an interesting aircraft brake they have just produced.

The development of a satisfactory brake for large aeroplanes, and particularly large amphibians, has been, up to the present time, a most difficult problem. In the case of the amphibian particularly, the necessity for a retractable landing gear makes the brake problem especially difficult.

Almost all kinds of brakes have been applied to the Sikorsky amphibians at various times. Before attempting to develop a brake, the Sikorsky Aviation Corporation experimented with practically all brakes on the market. None of these appeared to satisfy the exacting requirements, and accordingly, early in 1929, the engineering department started a long series of designs and tests. The result is the new multiple disc brake now in production, and being applied to all Sikorsky amphibians, enabling them to land within a space of 300 ft.

For any given diameter of band brake, only about so much braking can be obtained from a pedal pressure within the strength of the pilot. Various types of self-energising brakes are available, which under favourable conditions will increase the amount of braking from a given pedal pressure to about two and a-half times that of an ordinary band brake. Calculations and tests indicated that this amount of braking would not be sufficient for the Sikorsky amphibian.

Greater self-energisation seemed to be out of the question due to the possibility of the brakes locking, and accordingly experimental work was started on the design of multiple disc brakes.

As is well known, two stationary plates pressing against one rotating plate, will give twice the braking action with the same pedal pressure as would be the case if the two plates were pressed together.

This rule holds as the number of plates increase, the braking action always being the number of plates minus one, as would

be obtained by the single stationary and single rotating plate when pressed together. This then affords the opportunity to secure any desired amount of braking action and makes possible the construction of brakes of sufficient power to stop any plane now built, or which may be built in the future.

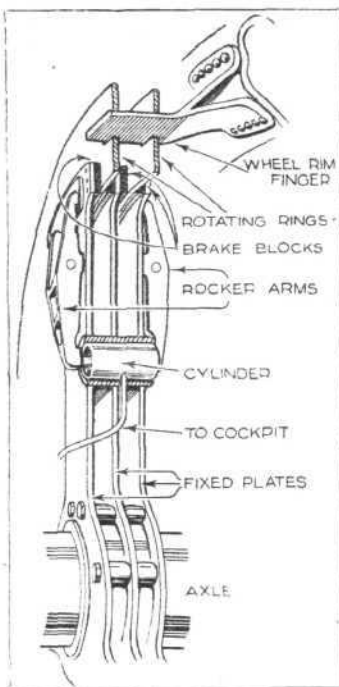
Weight in aeroplane construction is, of course, of primary importance, and in order to avoid heavier wheels, it was thought desirable to apply the braking action directly to the rim of the wheel if possible. Large diameter braking surfaces also have many advantages, and accordingly, it was decided to use two rotating rings and support and drive them by fingers riveted to the wheel rims. This construction makes possible the use of the same wheels as before, and without any increased wheel weight, except for the comparatively light fingers used to drive the rotating rings of the brake.

The multiple disc brake offers practically unlimited possibilities for having large braking surfaces. The difficulty in using large surfaces is, however, the problem of securing uniform pressure over the braking areas, without undue heavy construction. Most of the experimental work in connection with the brake development, was an effort to secure this even distribution of pressure without undue weight.

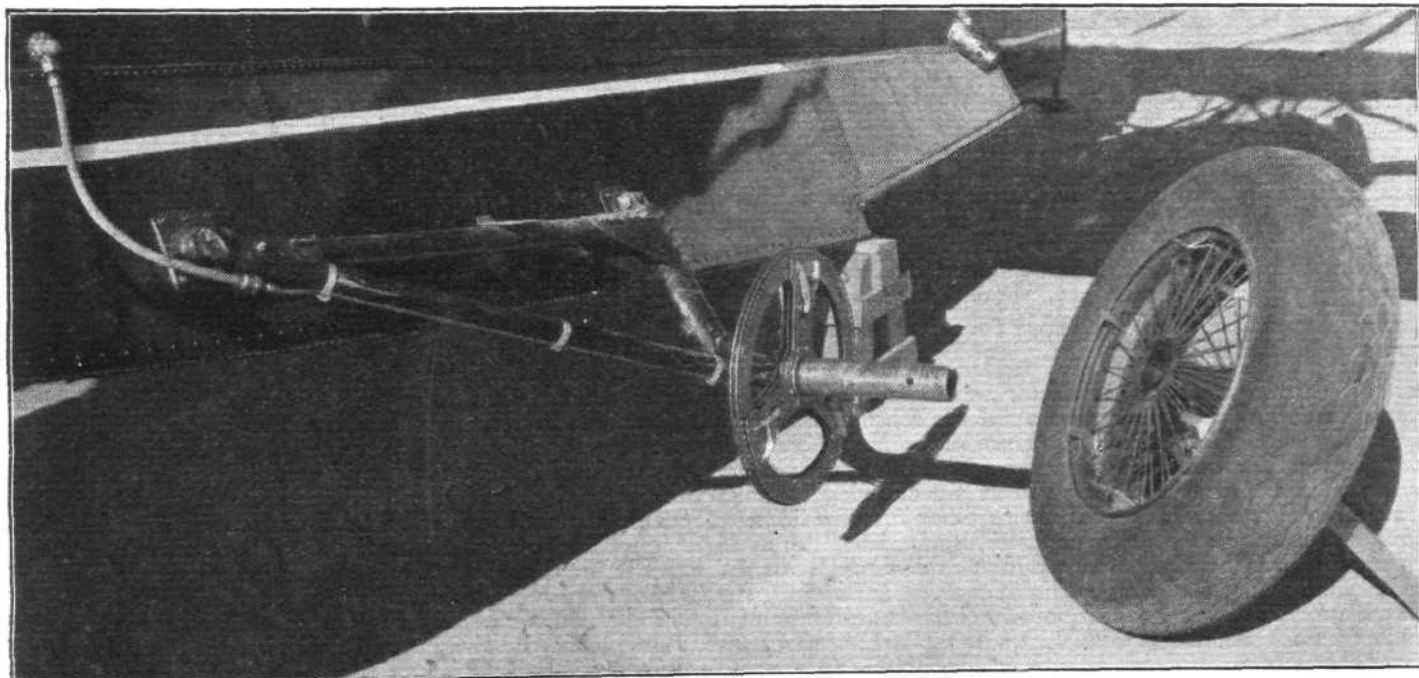
The accompanying photographs and sketch show clearly how this was done. There are three stationary plates, the outside and inside plates having brake lining riveted to one side only, while the centre plate has brake lining riveted on both sides. The duty of the arms of these stationary plates is to support the brake lining and to carry the braking torque inward to the axle. These plates are but sixty-two thousandths of an inch thick and yet, due to the placing of the metal in line with the stresses, these

three plates will carry safely to the axle a torque of in excess of 25,000 in./lbs., which translated into plain English means that there is a turning action on the bolts holding the stationary plates to the axle flange, of slightly over 12,000 lbs.

In the cockpit of the Sikorsky amphibian, and located



A diagrammatic sketch showing the principle of the Sikorsky Multiple-disc Brake.



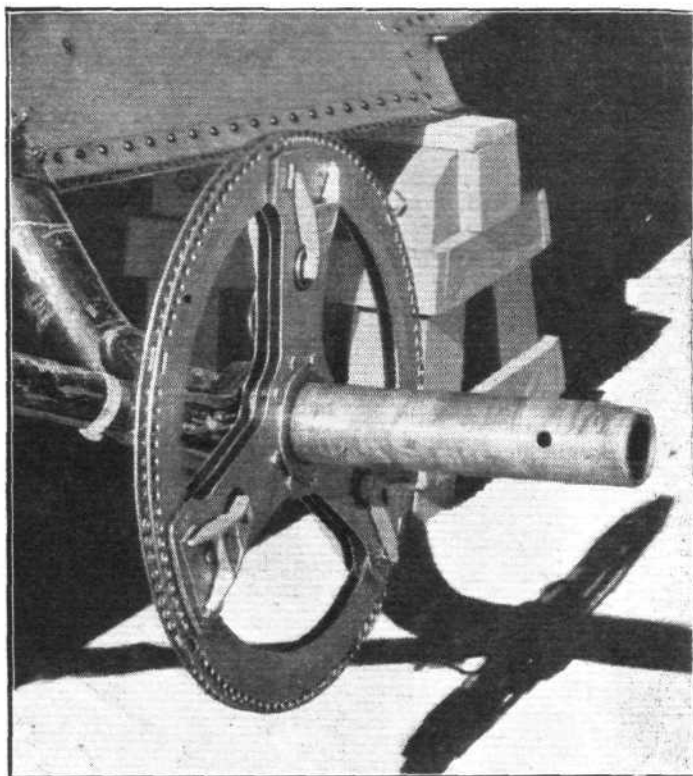
THE SIKORSKY MULTIPLE-DISC AERO-BRAKE: General arrangement of the brake parts, showing the method of mounting on axle and wheel.

between the rudder pedals, are two hydraulic cylinders operated by brake pedals. These cylinders are connected down to the axle through flexible hose and thence to one cylinder on each of the three sets of stationary arms, *i.e.*, three cylinders to each wheel. All cylinders are connected together on each wheel so that they work together, and when pressure is applied to the pedal in the cockpit, hydraulic pressure is applied to all cylinders on each brake, and the pistons are caused to travel outward. Both the cylinders and pistons are connected up through levers so that the outward force of the cylinders and pistons result in an inward pressure, tending to clamp the three stationary arms and the two rotating rings together. The rotation of the wheels, of course, causes the rings to turn, and the rings being clamped between the brake lining on the ends of the stationary members, a strong resistance to rotation is set up, which is transmitted down to the axle and thence into the hull of the ship. The wheels have been moved slightly forward to prevent the machine nosing over when the brakes are applied excessively.

The new Sikorsky brake has proved to be very satisfactory in operation and free from any troubles caused by the severe service of alternate immersion in salt water and quick drying after take-off.

The makers do not expect that small light planes will require brakes as complicated as the new Sikorsky brake, but there is no doubt that as planes increase in size, brakes of the multiple disc type will become increasingly necessary.

The accompanying illustration is a close-up of the Sikorsky multiple-disc brake, showing the fixed plates and rotating rings, the latter being carried on the wheel, and rotating with it, by fingers mounted on the rim.



AEROPLANE WHEELS AND TYRES

THE above is the title of a lecture delivered before the Westland Aircraft Society at Yeovil on December 22 by N. Walters, Esq., personnel officer of the Dunlop Rubber Co.

The lecturer opened by saying that this was the first occasion on which he had been privileged to address a scientific body. His previous lectures had been of a more "popular," "general interest" character; yet he hoped we were not expecting a scientific exposition. He would, however, like to deal with his subject by first describing the raw material—rubber. Rubber was a congealed gum obtained by cutting grooves in the bark of the rubber trees and collecting the exuded gum in small vessels which are frequently emptied by the natives. The chief sources of supply are the Federated Malay States and Brazil. The caoutchouc, as the gum is called, is congealed on the estates so that it may be readily transported. The commercial use of rubber has only grown since it was discovered that durability can be secured by various filling agents, notably sulphur and carbon, combined with a process of "curing" in heated presses.

The first requirement in any manufacturing process is to secure a stable raw material, and to this end scientific control was essential, for it was found that the rubber obtained from trees on the top of a hill differed from the trees in the same field of plantation at the base of the hill. A process of blending was therefore essential.

The pure rubber was rolled and crushed so that it became a "flannelly" sheet of crepe rubber such as is used on tennis shoes, etc., but in this form the rubber becomes sticky when heated. Filling agents are therefore added, and colouring materials to give the red tint for inner tubes and grey for outer covers.

Cotton threads are spun in the Dunlop factory for the reinforcing of tyres. The threads are coated with a very thin rubber solution, then with a thicker coating, and next the threads are moulded into sheets of rubber of varying thicknesses for the different grades of tyres. From a huge roll of this "rubber fabric" widths are cut diagonally so that the threads are on the bias to allow for the different strains which the finished tyre must stand. The tyre itself comprises several layers of this rubberised "cloth" with the threads arranged to cross alternately, so giving a very strong multi-ply "cylinder" with overlapped joints; this is next placed on a segmental mould and the tread moulded on and then cured.

Different designs of tread and tyre walls had been developed for different road purposes. A very open tread was necessary for competition riding over grass and loose stones, etc., but the resilient pads needed in this case soon wore out when

used on ordinary road surfaces because of the abrasion caused by the movement due to deflection, as well as by power-transmission wear.

In aero tyres failures were usually due to impact loads. Correct inflation pressures were essential; the air was the shock-absorber, but the restraining walls must be of such a strength as to withstand the bursting force of, say, a one-wheel landing with drift. All aero tyres are of the wired-on type, as distinct from the earlier beaded-edge balloon car tyres. The wired-on type cannot be stretched and so come off the rims of the wheel when inflated. They are applied by the use of the well-base rim, which allows the edge of the first wall applied to rest on one side on a lower point (in the well), and so enables the opposite side to be passed over the larger diameter rim; the second wall is similarly applied, and when the inner tube is inflated the inner edges of the walls are kept on the raised platforms alongside the "well."

The Dunlop Co. have developed the disc type of wheel for aero work, as it can be made stronger and lighter than the wired wheel and lends itself better to the incorporation of the brake drums with which many modern aircraft are fitted. The latest type of wheel is of light alloy construction.

The lecturer mentioned that the largest British landplane—the Beardmore "Inflexible"—was fitted with Dunlop wheels and tyres, 7 ft. 6 in. diameter.

All tyres were carefully inspected at various stages of manufacture; the rubber had to withstand abrasion tests, etc., but the finished product could only be tested properly under conditions of actual use. For car tyres the Dunlop Co. had a whirling-arm test machine which made the wheel and tyre travel at varying speeds over a surface which was roughened artificially by a man continually shovelling loose stones thereon. In addition to such artificial tests, the Dunlop Co. had a fleet of lorries, cars, motor-cycles, and even two-pedal cycles, which were run almost continuously to wear tyres to destruction and to prove the suitability of different types for the various loads. The pedal-cyclists attained the remarkable mileage of between 10,000 and 15,000 miles per annum, whilst the whole fleet was responsible for 1,000,000 tyre miles.

The question of standardising a range of aeroplane tyre sizes was becoming an urgent one, as at present there are 56 different sizes and types of wheels and tyres in use in Europe alone. The Dunlop Co. have tackled the problem to some extent by adopting the same rim dimensions for certain aero tyres as for certain car tyres, so that in emergency a car tyre could be fitted to the aircraft so equipped.

The lecture concluded with the showing of a film depicting the various processes of tyre manufacture.

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7th September 1929

331.6 MILES PER HOUR
(533.800 Kilometres per hour)

★
WORLD'S GREATEST SPEED
Squadron - Leader A. H. Orlebar, A.F.C., on
Supermarine Rolls-Royce S6 (Motor, Rolls-
Royce 'R') on 12th September 1929

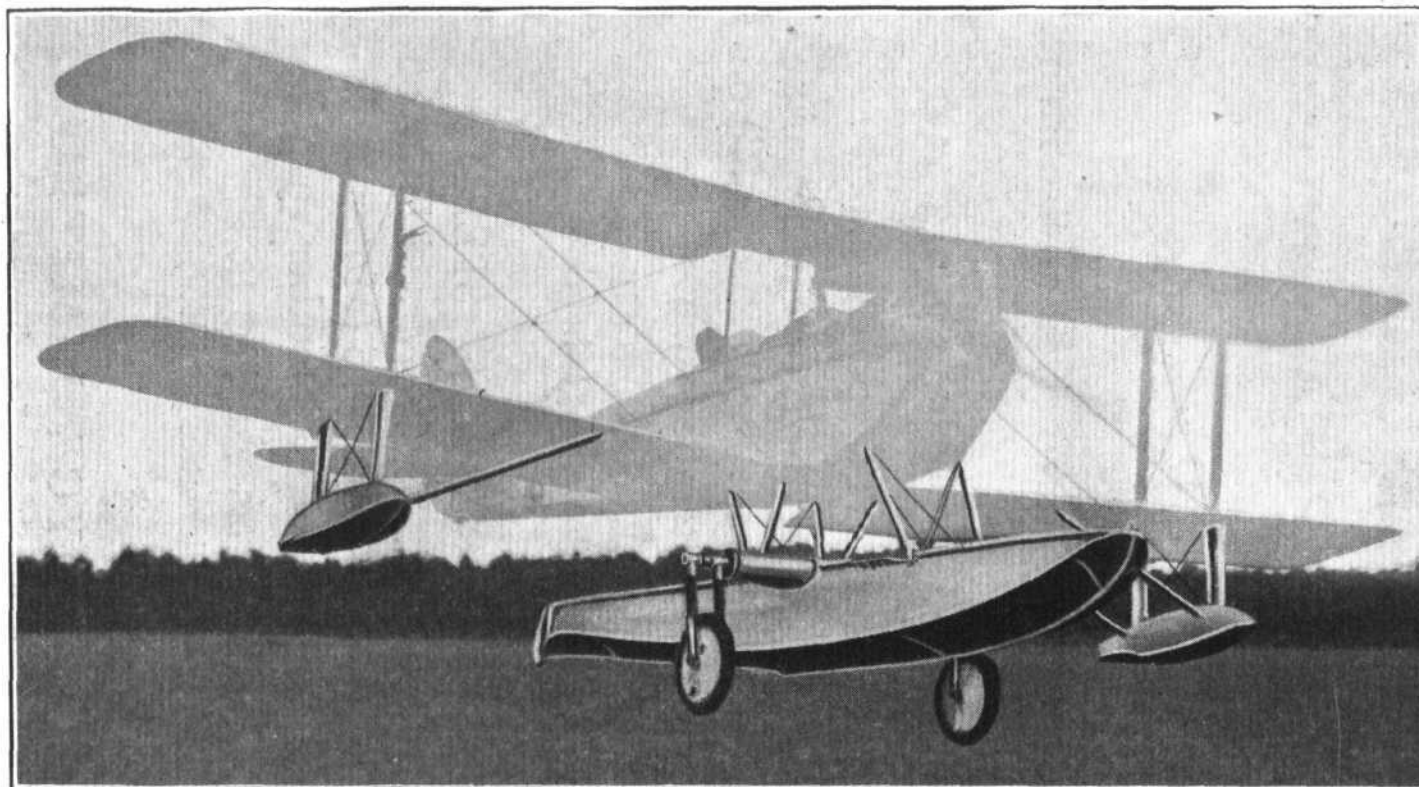
357.7 MILES PER HOUR
(575.700 Kilometres per Hour)

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[Flight Photograph.]

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PRIVATE FLYING AND CLUB NEWS

THE DESOUTTER (HERMES) COUPE has a firm hold on those who are looking ahead in the aviation business and agencies have recently been fixed up for this machine in Australia, New Zealand, the Argentine, and Uruguay with a firm order for three machines in each case.

THE HALTON AERO CLUB held a successful visit to the N.P.L. at Teddington when about 30 members attended, further visits have been arranged for the second session to the Fairey Co., the Napier Engine Co., and the De Havilland Co. The membership continues to grow and is now well over 1,500. An interesting series of lectures has been arranged which will include amongst others:—

Airship R 101. Wing-Commander Cave-Browne-Cave.
Wind Tunnels and Slotted Wings. Member of Messrs. Handley Page, Ltd.
Irving Parachutes. Mr. Irvin.
The Fairey Long Range Monoplane. Major Barlow.
Flying Boats. Member of Messrs. Short Bros., Ltd.

AT HANWORTH the organisation is now separated into three divisions, one for instructional and club flying, one for taxi and commercial flying and the other for aeroplane sales and service. Each division has its own hangar and staff and operates independently of the others, under the general management of the Senior Pilot. At Hanworth, therefore, the interests of the private owner are in the hands of a separate sales and servicing branch, which gives its whole time to this work. Flying Officer Dudley Page has been appointed to take charge of this division. Twenty lock-ups have been constructed and a large hangar on the North aerodrome has been set aside for the housing of privately-owned machines and for use as a showroom for aircraft offered for sale, both new and secondhand. Demonstrations can be arranged of any type of civil aeroplane, while some 24 second-hand machines are now on the N.F.S. list.

Not the least valuable of the fruits of the National Flying Services scheme is the reduction in the cost of insurance. The ideal of a £50 policy for a light aeroplane, including third party risks, has now been realised. Any flying member of a N.F.S. club who has flown 20 hours, including at least 10 hours solo, to the satisfaction of the company, is entitled to obtain a policy for an aeroplane of his own up to £800 in value for an annual premium of £50.

The policy covers accidents while flying or taxiing, damage occurring in the hangar, and damage done to third parties and property up to £1,000 on each claim.

Last week, one of the new Desoutter (Cirrus - Hermes engine) air taxis had an opportunity of displaying its ability to get through really rough weather. On Wednesday, when the country was swept by a 50-mile-an-hour gale, with low clouds and frequent storms of rain, it was flown by Flt.-Lt. A. J. Styran from Hanworth to Manchester and Liverpool, returning on the following day to London.

Both the pilot and the passenger, Mr. W. D. T. Gairdner, were impressed by the steadiness of the machine in a bumpy wind, and by the comfort of the cabin.

On the homeward journey, when flying against the weather, the high cruising speed of the machine was particularly valuable. An air speed of about 95 miles an hour was maintained throughout.

THE SINGAPORE FLYING CLUB are lucky in having Mr. P. F. Mills, who has produced for them an admirable book of flying notes for members. It is combined with the rules and bye-laws of the club and should prove of the greatest help to new members, while at the same time there is no doubt that older hands will also find much in it to interest and instruct them. The club is, of course, a seaplane club and the usual instructional books deal with lightplanes as landplanes, hence the need for this effort by Mr. Mills.

THE LONDON AEROPLANE CLUB will raffle an entirely new latest type metal Gipsy Moth, fitted with slots, compass, telephone, etc., painted in any colours desired by the winner. The number of tickets is limited to 1,500. Tickets, 10s. each, may be obtained at the London Aeroplane Club, 3, Clifford Street, London, W.1, or Stag Lane Aerodrome, Edgware.

THE COMMITTEE of the Royal Aero Club has decided that members of associated light aeroplane clubs, holding current "A" and "B" licences, shall, subject to election, be admitted to membership of the Royal Aero Club at a reduced subscription of £3 3s. with no entrance fee. This only applies to full flying members of the associated light aeroplane clubs.

THE SLIPSTREAM is the title of the newly issued journal of the Victorian Section of the Australian Aero Club. After a period of somnolence since 1914, the Club really started operation in August, 1926, and has gone steadily ahead since then. They now have nine machines and their members have gained 66 "A" licences and have put in 3,800 hours flying time.

SIR SEFTON BRANCKER, Director of Civil Aviation, speaking at Shrewsbury, on Monday, December 2, said that we were leading the world as amateur and sporting aviators.

Private flying was increasing every day, and this year his department was issuing pilots' licences and certificates for aircraft at double the rate it was in 1928. From what he could see we would double the rate again in 1930.

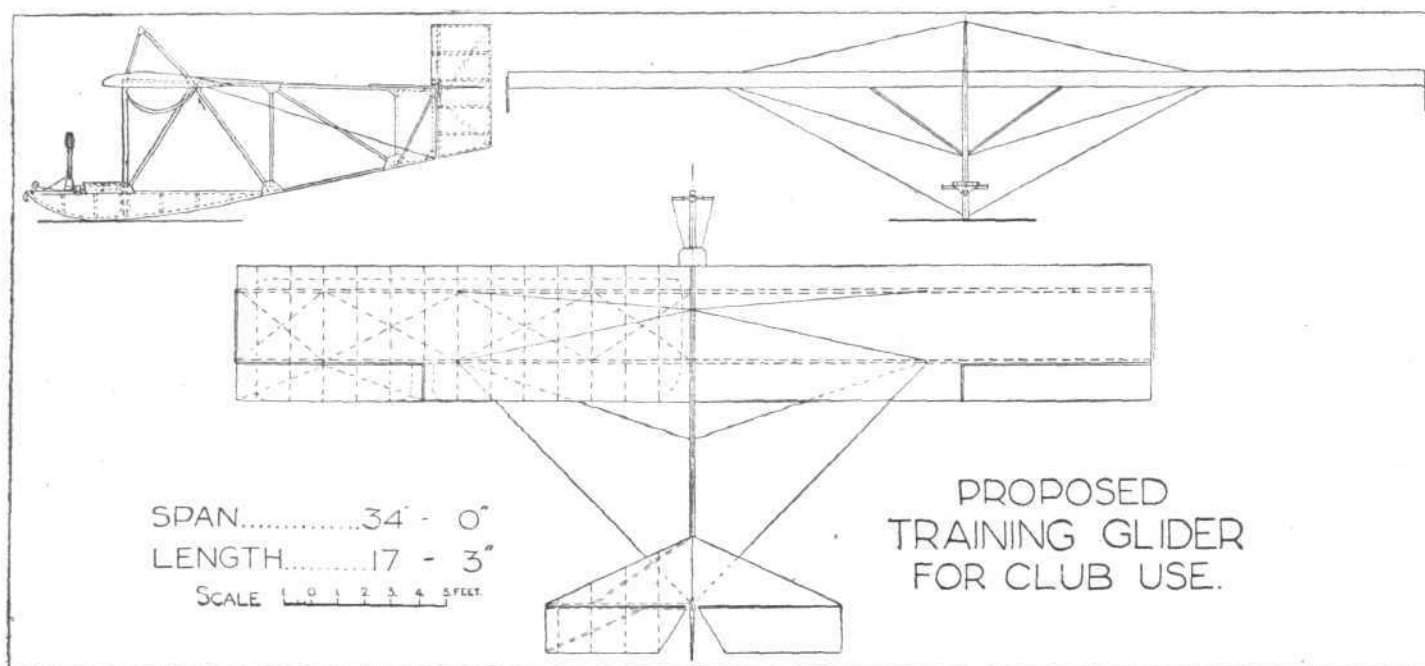
Every day we were moving towards making air transport pay its way, and as this materialised it was obvious that the demand for commercial aircraft would increase to very big proportions.

THE Editor of the *D.H. Gazette* has received enquiries as to facilities existing for the binding Volume 1 of the *D.H. Gazette*, comprising Nos. 1-15.

Will those readers who retain complete sets and who would like to have them bound, communicate with the Editor, who will obtain a quotation based on the number of replies.



Mr. S. A. Thorn, the new test pilot, and Mr. J. V. Holman, the assistant sales manager, of Cirrus Engines, Ltd.



ABOVE we illustrate a training type of glider which has been designed by Mr. R. S. Dickson, of Southampton. We have recently received a number of enquiries from those who wish to build, or at least to look into the possibilities of building, a glider, and there seems to be a lack of literature on the subject. For such enthusiasts the machine illustrated above may be the thing they are looking for, and with this idea in view we propose to publish further constructional details at an early date.

Mr. R. S. Dickson writes:—

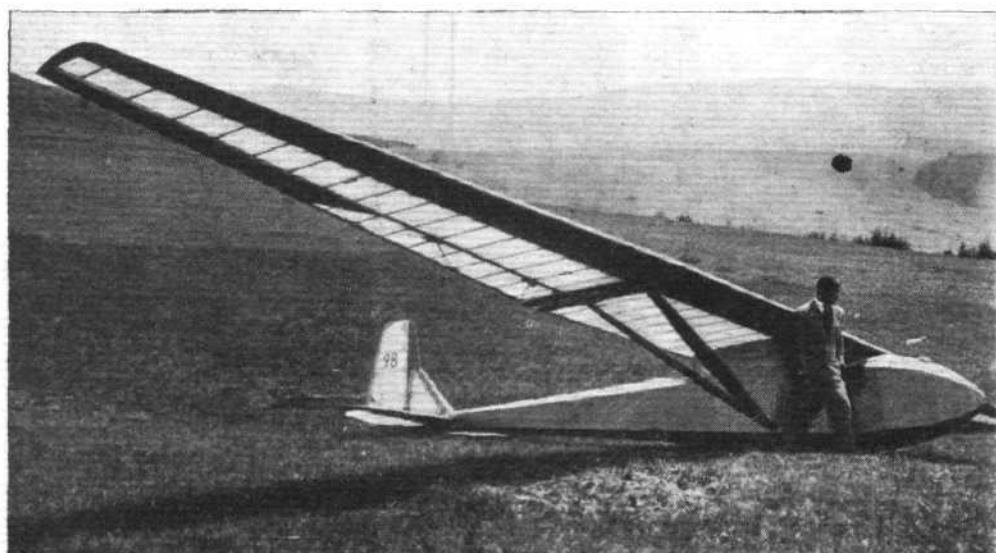
There is no doubt that the sport of gliding is at last coming into its own in this country. Events of the last few months have shown that there are a large number of people from all walks of life who are intensely interested in the human imitation of soaring birds. During the gales that have swept over the country of late, there have been many opportunities of witnessing that most beautiful spectacle of gulls hovering over a building or bridge apparently without effort, and one must be very weak-blooded if one does not feel at least a momentary desire to be with them. The feeling is so genuine that, as with many other intimate thoughts, one is rather apt to be slightly ashamed of it, and tries to cover up the apparent weakness with a jest.

At the present time, however, enthusiasts are meeting together in several parts of the country with a view to forming gliding clubs, and one very good sportsman has offered to pay for two or three machines to help things along. It is probable that in the near future some of these clubs will be satisfactorily started, in some instances as branches of the existing aeroplane clubs. There is a feeling that ordinary club flying tends to become rather boring, and although interest is kept up to a certain extent by means of competitions and meetings the average member would welcome something different. As a sport gliding has few equals, the combination required of a knowledge of air currents with quickness of thought, and gentleness of handling the controls, can only be compared with the art of yachting. One of our best-known aeroplane pilots was heard to remark the other day that he never had quite the same feel of the air with modern aeroplanes that he had with the old Brooklands machines before the war, which were more like engined gliders than anything else. He thought that a glider should give him the old feeling again, and he is impatient to try one.

Gliding has been practised spasmodically for very many years in this country, but the problem was not seriously attacked until after the war when the astounding re-

sults obtained by German experiments in the Rhön mountains during 1920 and 1921 began to interest other countries, notably France and England. In France a meeting was held at Combe-grasse, and in England we had a very interesting week at Itford Hill and Firle Beacon, near Lewes, Sussex. The French pilot, the late M. Maneyrol, succeeded at the Itford meeting in remaining in the air for 3 hrs. 21 mins. 7 secs. in a Peyret tandem monoplane glider, thereby beating the previous "record" held by Germany. After this, however, despite the encouragement given to gliding by the FLIGHT Glider Design Competition, the movement was practically dropped in this country, chiefly owing to the fact that the aircraft firms did not feel justified in spending money on a sporting venture of this nature, and there were unfortunately few people capable of carrying out design and construction work outside the aircraft industry.

During the period between the Itford meeting and the present day, Germany has gradually improved her gliding facilities so that many boys' schools now have their gliding club, and one club has been formed which is composed entirely of women. The Germans are at present far ahead of any other nation in the matter of engineless flying; and it is, therefore, of interest to investigate their latest types of aircraft so that we do not repeat their old mistakes. There are two chief types of gliders—or sail-planes, as they are called—in Germany at the present time: the very cheap and simple training machine, and the high-efficiency gust-soaring machine. The first type is designed to be as cheap as possible to build and repair, and must be fairly stable in



The second glider type referred to above. A photograph showing Herr Kronfeld and the glider in which he flew 100 km. over the hills by the Teutsburger Forest



A Hermes-Desoutter Coupé at Hanworth. In front are Capt. Stack, Rodney, Schofield and Styran of N.F.S.

flight to suit beginners, who fly solo from the start, although, of course, the first flights are of only a few seconds' duration. This type can be built for about £20 by an amateur craftsman, and is the type that the clubs will require. In Germany one may purchase this simple form of machine for £43. The second type of glider is only flown by fairly experienced pilots, and although a good machine can be built for £25 the price may rise above £200. This great difference is due to the fact that the chief points required in this type are light weight, and low drag, and in some machines the construction is very intricate and calls for the best possible materials and workmanship.

When the clubs start flying, the most popular glider will be the cheap training type, the high performance machine only being suited to experts who will probably own their own pet machines. In any case every person must start on a training type; even the best of pilots are not used to the light loading common to all gliders, and would have a little trouble at first.

In view of these facts it is proposed to attempt to standardise the simple glider, and to this end the machine shown in the accompanying drawings has been designed. The construction throughout is extremely simple, and the average amateur should have no difficulty in completing the machine. This glider has been designed with high factors throughout, and is very robust. The estimated weight without pilot is 180 lbs., thus giving a wing loading of approximately 2 lbs. per sq. ft. with an average pilot. The landing speed is 22 m.p.h., so that in an ordinary light breeze the relative ground speed will only be about 7 m.p.h. The wing section used, the C.Y.H., has a high maximum lift, low drag, and a fairly stable centre of pressure. External wire bracing is cheaper and simpler to repair than a pure cantilever wing, and there are no bracing wires inside the air surfaces, their place being taken by spruce strips.

"FLYING" is the title of the new official organ of the New South Wales Aero Club. It is a very ambitious and extremely well-got-up paper, and replaces the old "Fly Paper," which has done its duty to the club for so long. Details are given of the new Country Club which will be erected at Warwick Farm. This will undoubtedly be one of the best equipped flying clubs in the world. There will be an 18-hole golf course and the club will have its own aerodrome. In the first three years of its existence the club has grown from a struggling concern with but two machines and 60 members to over 800 members and 14 aircraft. The paper is full of interesting articles both technical and general, and all club news is dealt with in a very readable manner. An interesting fact is the purchase of two D.H.53's which seems to uphold the views of those who maintain that there is a demand for the ultra-light machine for club use by those who cannot afford the heavier machines. Gliding receives special mention and the activities of the Sydney University Gliding Club are reported at length.

PHILLIPS AND POWIS, of Reading, are closing down from the 23rd to the 28th. For November they got in 101 hrs. 55 mins. One pupil, a Mr. Stisted, put in 36 hrs. in his own "Gipsy-Moth" coupé! Four pupils passed for and obtained their "A" licences, and the number of school machines has been increased to four.

MONS. PAULHAN, JR., who follows in his father's footsteps and has become one of the star aerobatic pilots in France, is having a special "Gipsy-Moth" built for him on the same lines as the old G-EBYK, which is so well known as the machine in which Capt. Broad took so many prizes for aerobatics. Capt. Broad will personally supervise this machine and carry out all the tests upon it.



The finish of the East-West Australian Race at Mayland Aerodrome. A Klemm, which is the Service machine of the Lang Tractor Co., is just coming in.

AIRISMS FROM THE FOUR WINDS

Spain to Brazil Flight

CAPT. LEON CHALLE and Col. Tadeo Larre-Borges left Seville at 12.40 p.m., on Sunday, December 15, on a flight to South America. It was hoped to reach Monte Video non-stop, and so establish a world's long-distance record. They were flying a Breguet XIX. A 2 biplane fitted with a 450 h.p. Lorraine Dietrich engine, and the machine carried 4,600 litres of fuel and oil, three roast chickens, four bottles of champagne, and some fruit and chocolate. At first good progress was made, and on Monday, the 16th, at 2.30 a.m., the machine was over the Cape Verde islands. Later in the day headwinds were met and petrol began to run low. The pilots sent out a wireless request for information about the weather ahead, but did not receive a clear reply. They got off their course to the north, and crossed the Brazil coast about 50 miles north of Natal, which was their objective. They attempted to land in darkness at 4 a.m. in a clearing in the jungle of Marajuca in the state of Rio Grande, and not far from Toureos, where Ferrarin and Del Prete landed last year. The machine turned over on landing, and was wrecked. Capt. Challe was somewhat hurt in the crash. They had covered about 3,600 miles. Capt. Challe made his name in 1927, when he flew by stages from Paris to Saigon in a Potez machine. Col. Larre-Borges, in March, 1927, with three other Uruguayan airmen, made an attempt to fly the Atlantic in a Dornier Wal with Farman engines. They were forced down by engine trouble off Casablanca. The Wal was totally wrecked by the force of the waves, but drifted ashore. The four airmen were captured by Arabs, but their plight was discovered by French airmen, and their release was arranged.

Paris-Saigon Flights

CAPTAINS LEBRIX and Rossi left Le Bourget at 11 a.m. on December 16 on flight to Saigon, in French Cochinchina, which they hope to reach in 100 hours, including stops at Benghazi (Cyrenaica), Basra, and Allahabad. Three other French airmen, MM. Lassalle, Rebard and Faltot, are also on their way to Saigon in a Nieuport monoplane (230 h.p. Lorraine engine). They reached Tunis, their first stop, after 12 hrs. flight, and left on December 13 for Alexandria.

New Closed Circuit Record

CAPTAIN COSTES and M. Codes landed at Istres, near Marseilles, on December 17, after breaking the French record for a long flight in a closed circuit by covering about 8,100 km. (over 5,000 miles). They were in the air between Avignon and Narbonne for 52 hrs. 40 mins. Their machine, a modified Breguet XIX. A.2 biplane, was that in which Captains Costes and Bellonte recently broke the record for distance in a straight line in a flight from Paris to Manchuria.

Cobham's Flight to Africa

SIR ALAN COBHAM on his flight to Africa left Croydon on December 10 and is travelling via Pisa, Marseille, Rome, Tunis, Gabes, Tripoli. On December 18 he arrived at Benghazi.

New Zealand Air Force

OVER 600 applications for 21 vacancies was the response the Defence Department received to its recent advertisement for aircraftmen and aircraft apprentices for the New Zealand Permanent Air Force.

Autogyro Developments

SEÑOR DON CIERVA, the inventor of the autogyro, announces on his return to Madrid from the United States that arrangements have been made for the establishment of two factories at Philadelphia for the building of his machines.

Indian Air Mail Extensions

THE Indian air mail from Croydon will be extended to Delhi on and from December 30. Speaking at the annual general meeting of the Associated Chambers of Commerce of India and Ceylon at Bombay on December 17. Sir B. N. Mitra, Industries Member of the Government of India, said he hoped it would be possible to start, in the middle of the fiscal year 1930-31, the Delhi and Calcutta extension of the England-India air mail service, for which the ground organisation was practically ready.

Search for Lieut. Eielson

CANADIAN aviators will leave Montreal shortly to join in the search for Lt. Carl Eielson, who has been missing from his base at Nome, Alaska, for the past month.

Farman Disaster

As the result of an accident caused by the high wind, M. Lucien Rougerie, director of the Farman aerodrome, near Marseilles, was killed on December 12. M. Rougerie and M. Farman were conversing near a big aeroplane shed when a

cracking sound gave warning that the building was giving way before the gale which was then blowing.

They shouted to the workmen in the shed to hurry away, and no sooner had all the employees got clear than the building came down. M. Rougerie was struck by an immense door and instantly killed.

Rules of the Air in Germany

A BILL controlling air traffic has been submitted to the Reichstag by the Reich Traffic Ministry, says the Exchange. It lays down that—

One aeroplane overtaking another must pass on the right side.

When the paths of two 'planes cross then the machine coming from the left must give way. This passing or giving way must not be carried out by flying under.

All 'planes must give way to airships, balloons and gliding planes, and must keep at a certain distance from them.

Towns and inhabited districts must be flown over at such a height as will enable planes to land outside them or at an aerodrome.

When flying over crowds a height of not less than 600 ft. must be maintained.

No flying under bridges or electric cables or over broadcasting stations is permitted.

Red light signals from a 'plane will indicate that it is forced to make a landing.

The police can signal to any air vessel that it must land.

Hedjaz Air Force

IBN SAUD, King of Hedjaz and Nejd, is marshalling his forces. During the last few days he has achieved his ambition of years and has obtained from England four officers who have resigned from the Royal Air Force.

They have with them a flight of English bombing machines.

The Hedjaz Air Force is small but very efficient, for in addition to the pilots a staff of British mechanics has also been secured.

Commander Byrd's Message to the R.G.S.

THE Royal Geographical Society has received the following wireless message from Commander Byrd through Dr. Isaiah Bowman, of the American Geographical Society:—

Please express to the Council of the Royal Geographical Society my hearty thanks for their message. My already deep admiration for Scott, Shackleton, Mawson, and their comrades has greatly increased. What they did without the aid of aviation was almost superhuman. The little we have done with the aid of aviation has not been difficult. We await with pleasure the arrival of Wilkins, who is going to fly to our base. Kind personal regards.—RICHARD BYRD.

Another African Hunting Expedition

CAPTAIN W. MITTELHOLZER, the Swiss airman, who has been engaged to pilot Baron de Rothschild, of Vienna, to Central Africa for a hunting expedition, left Zürich on December 15. Later on Captain Mittelholzer will attempt to fly over Kilimanjaro, the highest mountain in Africa. Capt. Mittelholzer, it will be remembered, carried out a similar expedition (on a Dornier seaplane) last year.

Aviation in Egypt

A NUMBER of well-known airmen have gone to Egypt in the course of the flying season, which lasts from December until early June. The following have been granted permission by the Government to fly by way of Egypt: Sir Alan Cobham, who is now on the way from London to Broken Hill, Northern Rhodesia. The famous French pilot, Captain Le Brix, with Lt. Lasalle, who are flying from Paris to Saigon. The Swiss airman, Mittelholzer, who is flying Baron Louis Rothschild with three companions from Switzerland to East Africa for a big game hunt. Mr. Roy Tuckett, who is now at Aboukir, having his machine repaired, after an accident when flying a light aeroplane from London to Port Elizabeth.

The Air Travellers Guide to Europe

CAPT. NORMAN MACMILLAN has compiled a very useful book with the above title. It is handy in size and form and packed full of all details which the air traveller will require. Full details of all routes in each country and maps showing the towns served are presented in a readable manner which will make entertaining reading during the journey.

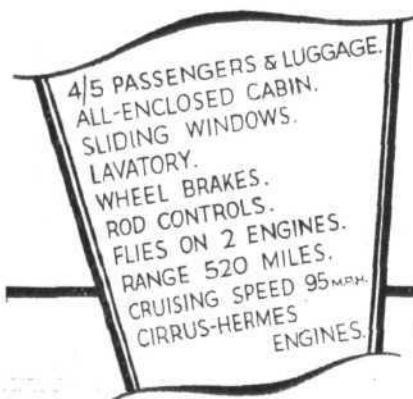
Pass and Joyce Rejoice!

ONE of the Pass and Joyce salesmen has just sold to one individual client two Straight Eight Marmons, a Rover, a Bean lorry, a 23-ft. British power boat, and a de Havilland Moth 'plane.



*Imperial Airways Ltd. operate a
Westland IV*

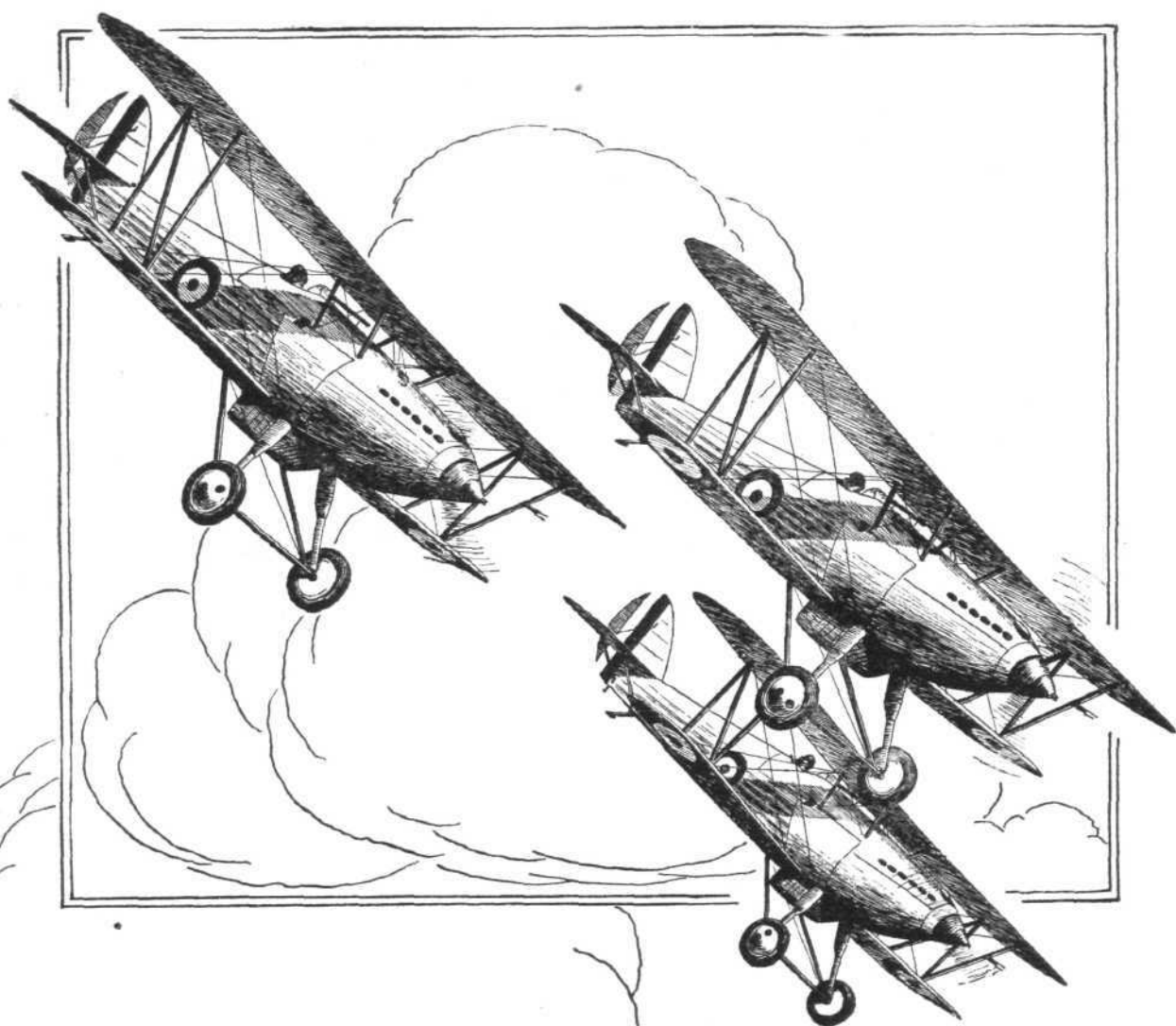
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AIR TRANSPORT

Western Australian Airways Statistics

IN our issue for November 22 we published statistics regarding the aerial services operated by Western Australian Airways, Ltd., up to September last, and we give below the figures up to October 28. These figures, it should be noted, represent the total to date since the company started operations eight years ago. The figures in brackets are those for the month of October. Passengers carried:—(Perth-Derby), 6,797 (92); (Perth-Adelaide), 1,517 (301); (taxi and joy-ride) 9,625 (431). Machine flights, 9,345 (162). Miles flown, 1,330,008 (31,989). Letters carried:—(Perth-Derby, to September 30), 1,594,802 (49,485); (Perth-Adelaide), 23,644 lbs. (1,430 lbs.). Freight carried:—(Perth-Derby), 265,915 lbs. (9,203 lbs.); (Perth-Adelaide), 8,009 lbs. (1,465 lbs.).

A.A. Flying Maps

THE Automobile Association desires to draw the attention of their members to a correction of the current $\frac{1}{4}$ -in. Ordnance Survey Civil Air Edition, Sheet 12. The position of the forbidden area at Chatham has recently been altered, and a new edition is in hand. Members who desire to have their A.A. General Service Flying Maps brought up to date, are invited to send them to the Automobile Association.

The Cowes Airport

THERE is no immediate prospect of Cowes becoming a Customs airport. The District Council, who recently approved of an application by Messrs. Saunders-Roe, Ltd., for the establishment of a Customs airport, have received a reply from the Commissioners of Customs and Excise, stating that the approval of aerodromes as Customs aerodromes is vested in the Air Ministry, subject to the concurrence of that department.

Having regard to the facilities available at Woolston, Southampton, and for the needs for economy in the Customs staff, the Commissioners were unable to agree to the establishment of a Customs aerodrome at Cowes.

Airship Mooring Mast for New York

NEW YORK's skyscraper race, in which the Chrysler building and the Bank of Manhattan were first engaged, now has a new entrant.

This is the Empire State building on the site of the old Waldorf Astoria Hotel, which is being erected by the company of which Mr. Alfred E. Smith, the Democratic Presidential candidate, is the head.

He announced that the building would be topped by a mooring mast for dirigibles which would be 1,300 ft. above Fifth Avenue, making it the tallest structure in the world. Mr. Smith said that a mooring mast was necessary, because, now that dirigibles are coming to New York, they are forced to moor 75 miles away, at Lakehurst. The mast itself will be 200 ft. high.

Airmindedness in India

SOME people's airmindedness is irrepressible, and the dauntless Maharanee Regent of Cooch Behar, notwithstanding the fact she nearly lost her life while sheltering on the hull of a Calcutta flying-boat off the reef at Suda Bay, declares she will buy a machine and fly about India.

A Madagascar Echo

THE Ministry for the Colonies received a telegram from Antananarivo, Madagascar, on December 11, stating that Capt. Goulette, and MM. Marchesseau and Bourgeois, the French airmen, who arrived in Madagascar on October 27, having flown from Paris with mails by way of the French West African colonies and the Belgian Congo, and who took off from Reunion Island on December 2 for Antananarivo, and, after staying several days, left for Mozambique on Saturday, November 30, have been picked up at Juan de Nova Island by the steamer *Gallieni*. All are well and the mail is intact. No further details of the rescue have been received.

Australian Production

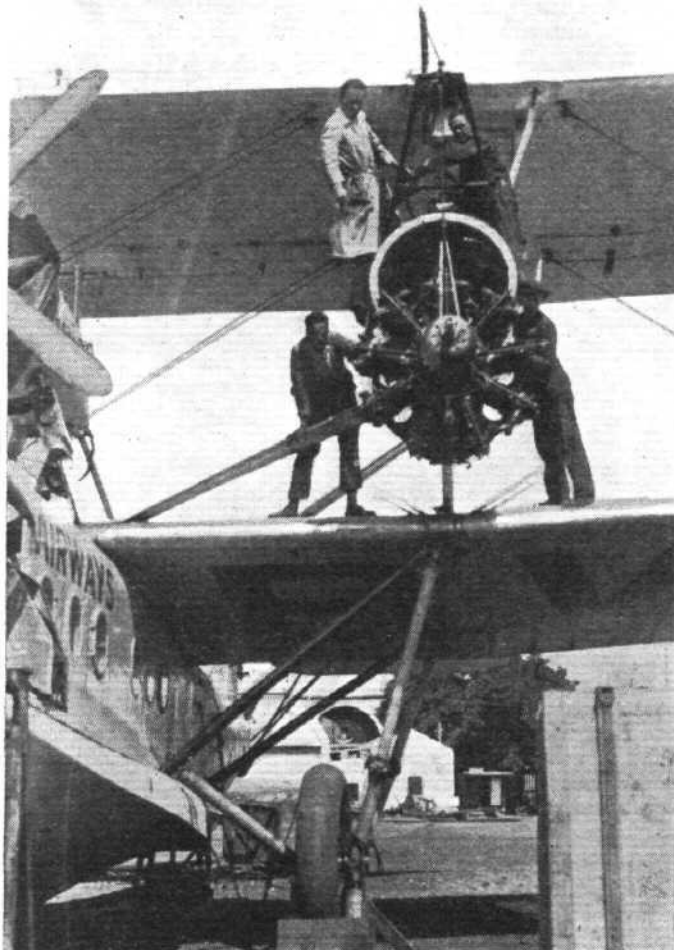
QUANTAS have recently built their eighth D.H. 50. These aircraft are entirely Australian, from the timber to the fabric, with the exception of the Bristol Jupiter engine.

Picture Transmission to Aircraft

AN innovation which may greatly increase the safety of flying has just been introduced into Germany. The Deutsche Luft Hansa and the Deutsche Fultograph Gesellschaft have recently co-operated in transmitting pictures from the Berlin radio sending station to aeroplanes in flight. During the first flight a chart was transmitted which enabled the pilot to determine the weather conditions to be encountered on his route from Berlin to Cologne. In the course of a second flight, the position of a heavy thunderstorm advancing from west to east was transmitted, enabling the pilot to estimate the speed of the storm, and at what point he would encounter it. The third picture transmission was that of an airport, a part of which had been rendered unsuitable for landing by floods, and from this the pilot was able to judge the precise spot which would afford him a safe landing. A considerable development of this system is said to be imminent. The transmission of meteorological information on the basis of a weather map, for instance, is considered more efficient than a detailed written weather report. With the new apparatus, an exact weather chart may be transmitted to the plane within three minutes, and the Deutsche Luft Hansa is considering the installation of this apparatus on the Berlin-Paris and Berlin-London services.

Soviet Air Lines

FOUR new Soviet air lines are to be initiated during the



ENGINE OVERHAUL SIMPLIFIED: Our picture shows a Bristol "Jupiter" engine being removed for overhaul from the port side of a Short "Calcutta" flying-boat, of Imperial Airways, on the shores of the Mediterranean. The self-contained derrick and winch make this operation a comparatively simple one, while the detachable launching chassis of the "Calcutta" further simplifies matters.

current financial year. The length of the new lines will be 13,509 kms., which is approximately 78 per cent. of the total length of air lines in operation in 1928-29. The new lines will link up the following important centres:—Moscow-Tashkent; Archangel-Verkhneudinsk-Khadarovsk-Alexandrovsk (Sakhalin Island); Alma-Ata-Dzharkent; Kharkov-Kiev; and Kharkov-Odessa. The programme for 1929-30 provides for flights totalling 9,000,000 kms.

U.S. and Canadian Air Traffic Agreement

THE Minister of National Defence announces that an agreement has been arrived at between the governments of Canada and the United States relative to international traffic by air between the two countries.

This traffic has been regulated since June, 1921, under a provisional agreement reached then. The new agreement supersedes this and provides for its regulation in greater detail. It is reciprocal and covers the admission of civil aircraft registered in one country to the territory of the other, the issuance of pilots' licences in both countries to nationals of the other and the acceptance of certificates of airworthiness for aircraft exported from either country to the other. It applies to all commercial and state aircraft other than those in the military, naval, customs and police service.

Under it, Canadian aircraft entering the United States must be registered and passed as airworthy by the department of national defence and must bear the registration letters allotted to it by that department. In the same way aircraft of the United States entering Canada must be registered and passed as airworthy by the United States department of commerce and bear their registration markings. Aircraft desiring to cross the international border must carry aircraft, engine and journey log books and certificates of registration and airworthiness. Their pilots must carry licences issued to them by the department of national defence in Canada or the department of commerce in the United States.

It further provides that the department of national defence may issue pilots' licences to American nationals, provided they are qualified under the regulations of the department, and in the same way the department of commerce may issue pilots' licences to Canadian nationals, provided they are qualified under the American regulations. Such pilots' licences entitle the holders to the same privileges as are granted to nationals of the issuing state, except that they may not as owners register aircraft in the territory of the other state.

It also provides that the taking of aerial photographs by the aircraft of one country is not permitted over the territory of the other. Under the new agreement, aircraft and pilots licensed to carry passengers and cargo by either Canada or the United States may engage in traffic between the two countries but may not operate commercially between points in the territory of the other state. Such international traffic is subject to compliance with the laws and regulations in effect in both countries governing the operation of civil aircraft and to compliance with customs, quarantine and immigration requirements.

The two governments agree to recognise the certificates of airworthiness for export issued in connection with aircraft built in the territory of either for export to the other.

The new agreement becomes operative immediately and will continue in force until sixty days' notice of desire to terminate it is given by either country, or until it is superseded by a further agreement between the two countries dealing with the same subject, or by enactment of legislation in either country inconsistent with the terms of the agreement.

No special permission is now required to cross the border. So long as aircraft are licensed and flown by licensed pilots, they may fly from one country to the other, provided the customs and immigration requirements are fully complied with.

Organising Aerial Prospecting in Northern Canada

THE experience gained during the current year suggests value of concentration on particular areas, and it is understood that the big aerial prospecting organisations have decided that their future operations shall be concentrated on a few chosen fields. The Northwest Territories, particularly if the Arctic Islands are included, represent an immense area, and flying over this huge region will always be difficult and hazardous. The companies concerned have formed the opinion that there exists very great mineral wealth, the discovery of which will be possible, provided that the best methods of exploration can be arrived at.

The *Northern Miner* states that the experience of the past few months has led to the conviction that further work is undesirable in the immediate future in the south-western part of the "Barren Lands" lying to the west of Hudson

Bay, although the northern portion of the Barrens sloping down to the Arctic Coast contains Keweenaw formations somewhat similar to those found in the big Michigan copper mines.

The Mackenzie River Valley, with its hundreds of thousands of miles of unexplored mining territory east of the Rocky Mountain chain, will command interest; and the districts around Lake Athabaska, Great Slave Lake and Corporation Gulf will have focal points for next year's prospecting operations, for which elaborate preparations are now in progress in the way of moving in equipment and supplies and establishing bases.

Aeroplanes with 1,000 h.p. engines, to act as "mother-ships" for the smaller cruisers, are a possibility either next season or during the following year, and these may be obtained either from England or Germany. In 1928 prospecting was inaugurated in single plane expeditions; this year machines were sent out in pairs except on short flights, and later in the fall three-plane expeditions were planned.

The principal utility of the 1,000 h.p. "mother-ships" is in the establishment of gasoline caches and in the transportation of instruments and supplies, and occasionally large bodies of prospectors, leaving the smaller six-men machines free for scouting and cruising and for depositing prospectors in favourable localities.

The maximum cruising range is believed to be 600 miles in one "hop," but much progress can be made in increasing the number of gasoline caches, some of which are from 400 to 600 miles apart. Intervals of 100 miles are the ideal now aimed at, and more wireless stations are required in the north country, say, at a distance of from 300 to 400 miles apart.

The prospecting organisations have been greatly impressed with the value of aerial photography. Already air photography is being employed extensively by lumber companies and by the builders of railways and transmission lines. In one recent case, in connexion with the building of a power transmission line, a survey was made at a cost of \$2,000 by air photography which would have cost \$100,000 by the older methods.

The Air Ministry Report on Municipal Aerodromes for the month ending November 11, 1929.

Towns which have purchased grounds—

Bristol.
Carlisle.
Liverpool.
Manchester.
Plymouth.
Stoke-on-Trent.
Ipswich. (7).

Towns which have reserved sites in their Town Planning Schemes—

Basingstoke.
Morecambe.
Skegness.
York. (4).

Aerodromes Licensed—

Blackpool.
Hull.
Nottingham.
Wythenshawe. (4).

Towns awaiting inspection of their sites—

Abergavenny.
Blythe.
Chester.
Doncaster.
Gravesend.
Huddersfield.
Leek.
Poole.
Palkirk.
Wombwell.
Newport.
Southport. (12).

Towns which are at present negotiating for purchase of ground—

Burton.
Cardiff.
Hastings.
Hereford.
Portsmouth.
Southampton.
Southend.
Sheffield.
Worcester. (9).

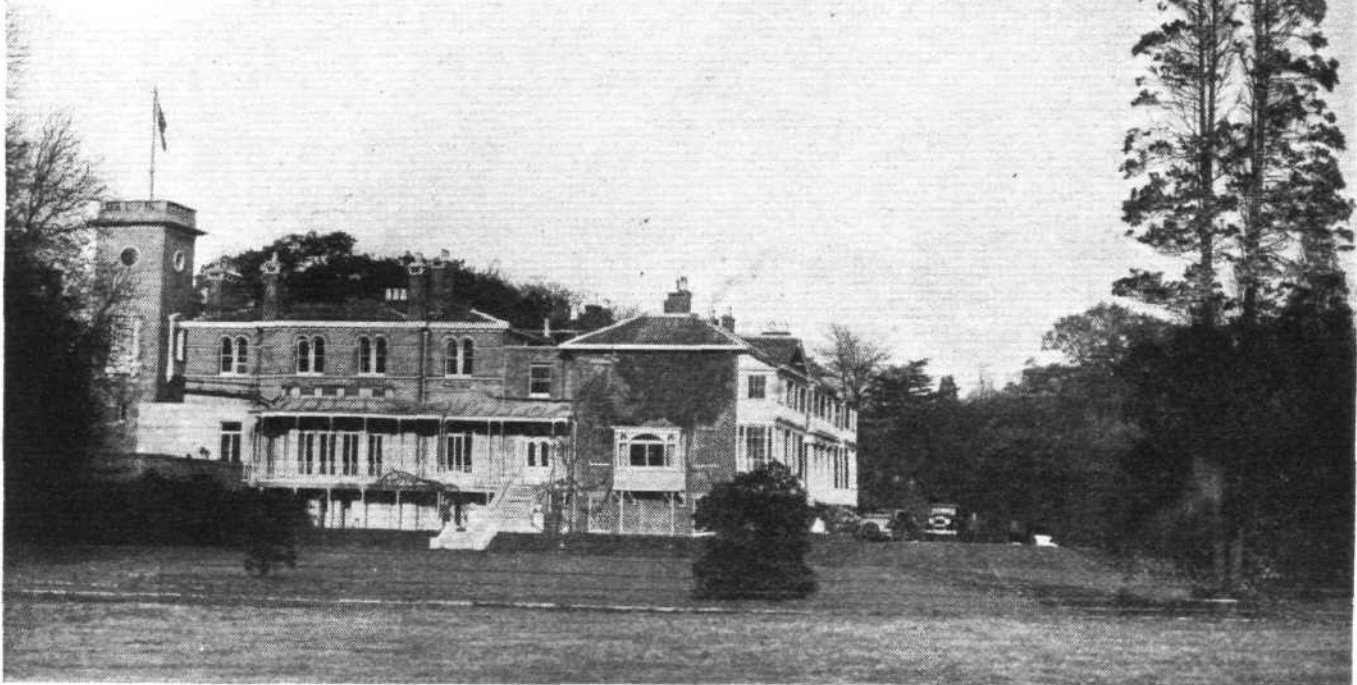
Towns which have shown active interest—

Alloa.
Aberdeen.

*Bognor.
*Bournemouth.
*Birmingham.
*Bradford.
*Brighton.
*Belfast.
Bolton.
Burry Port.
Bedford.
*Crewe.
*Cheltenham.
Coventry.
*Chorley.
Darlington.
*Derby.
Dover.
Dunfermline.
Durham.
Edinburgh.
Eastbourne.
Exeter.
*Gloucester.
*Gateshead.
*Glasgow.
*Greenock.
Hebburn.
*Hastings.
Haverfordwest.
*Inverness.
Jarrow.
*Kidderminster.
*Leeds.
*Leicester.
*Littlehampton.
Loughborough.
*Maidstone.
*Middlesbrough.
*Newton Abbot.
*Northampton.
Newcastle.
Peterborough.
*Rotherham.
*Scarborough.
Sunderland.
South Shields.
*Swansea.
Salisbury.
Shrewsbury.
Stratford.
*West Bromwich.
*Wolverhampton.
*Worthing.
*Wellingborough.
*Walsall.
Warrington.
Winsford.
Yeovil. (59).

* Sites have been inspected.

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and stations. A chain of landing grounds is in course of establishment.

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[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

INTERNATIONAL COMPARISONS

[2244] In your very interesting Editorial of December 6 it seemed to me that you had perhaps hardly done Dr. Dornier justice. It stands to reason, of course, that an increase in size involves an increase in relative structure weight, if other things remain the same. To minimise the effect of this a higher wing loading must be employed in big machines. This has always apparently been recognised and applied by Dr. Dornier, but to design a flying-boat with a wing loading of $21\frac{1}{2}$ lbs., and power loading $18\frac{1}{2}$ lbs., is a thing no one has attempted before, and in boldly going for such figures and demonstrating the feasibility of taking off a machine of such a size and loading, Dr. Dornier deserves the congratulations of the aeronautical community for his courage and ability.

It is, of course, not fair to push comparisons with overloaded machines too far, but I think that your point that

known performance before the rigid and accurate application of the regulations which is now in force. There was until recently (sufficiently so to affect to some extent existing designs) a minimum "gliding speed" requirement which would eliminate anything having a loading greater than about 7 lbs. per sq. ft. This has now gone, and this is fortunate for it will be seen from the chart that had it remained there would be left only a restricted and not very useful zone for the British constructor.

Now as regards the validity of curve A, this is based on sound theoretical foundations, the necessary constants being found by an exhaustive series of trials from 1918 to 1920 and since, in which some very extreme cases were used and subject to small variations due to geared or ungeared engines, etc., will I think be found quite accurate.

When, therefore, we are confronted with the alleged superiority of foreign products to our own in the matter of

paying load per horse-power and so on, we can see by placing them on this chart whether we are allowed by the Government to compete, apart altogether from whether we should consider it wise to do so.

I have indicated by the point "P" a type which is understood to be selling well in parts of the British Empire. It will at once be seen that if this machine were compelled to pass British requirements it would have to shed paying load to the extent of 2 lbs. per horse-power. "M" is a British machine of similar type, which, although stressed up to 16 lbs. per horse-power (since it must sometimes be a seaplane), can only be certified for 15 lbs. per horse-power on land. "R" is a new multi-engine land machine of foreign

origin which is well spoken of. I have not named these in case my information is not quite accurate. You no doubt have access to sufficiently accurate information to place many aircraft on this chart. So far as climb qualities and structure weights of aircraft are concerned, there is no room for miracles. When apparent miracles are produced to show the British constructor how inferior he is they should be examined by some such means as are indicated above. The results may be a surprise to many people, but will at least show that British manufacturers are blamed for matters which are entirely beyond their control.

C. C. WALKER

The De Havilland Aircraft Co., Ltd.,
Stag Lane.

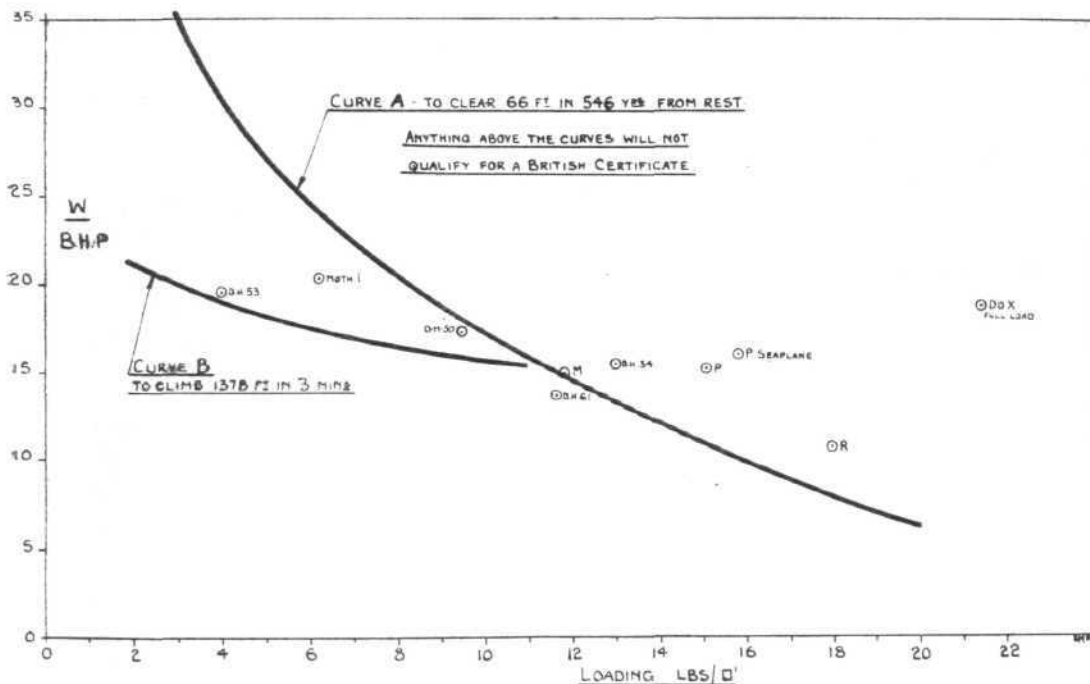
December 13, 1929.

TAIL POSITION

[2245] In fairness to ourselves, we must ask the privilege of replying to Mr. Koolhoven's letter No. 2239, in your issue of December 13.

Mr. Koolhoven's explanation of the reason for the high tailplane position is highly amusing to us, in view of the inside information which we have in our possession as to the real reason. However, as we have no desire to discredit anyone, we will not (at the present juncture, at any rate) enter into a controversy on this matter.

We note that Mr. Koolhoven prefers to have a machine which requires a very long run to take off rather than to have one which is able to get out of a small field by having a quick take-off, but which has the disadvantage inherent in all efficient aeroplanes, i.e., that if started single-handed with too much throttle by an absent-minded pilot it would nose over.



Regarding Mr. Koolhoven's experience in England, we would prefer not to stress this matter, but we must (in view of his statements) point out that the specification of the original F.K.41 was very far from being up to British Air Ministry requirements.

We very much regret Mr. Koolhoven's lapse from good taste in his last paragraph, which, in any case, would appear to be based on a misconception, as, in the first place, the F.K.41 is not being built in England, and Mr. Desoutter, not being a designer or a technical man, has not made any changes—the complete re-designing which resulted in the production of the Desoutter Sports Coupe being entirely due to Mr. G. Handasyde, a veteran British aircraft designer and constructor whose experience of aircraft dates back even further than that of Mr. Koolhoven himself, and the success of the Desoutter Sports Coupe (the result of this re-designing) is too well known to need stressing here, so that Mr. Koolhoven's simile would have been far truer had he compared the position to that of a man who, having bought a misfit abroad, had it re-made by a West End tailor.

DESOUTTER AIRCRAFT CO., LTD.,

A. M. DESOUTTER

December 14, 1929.

AVIATION OLD TIMERS

[2246] *Re* Mr. D. W. Thorburn's letter concerning "Aviation Old Timers," I, for one, would be very pleased to see the old names featuring again in FLIGHT. Their history, both past and present, would form a welcome item in your journal. Let's hear from them by all means.

C. F. CAUNTER

Hendon, N.W.4.

December, 1929.

[2247] I am in complete agreement with your correspondent, H. F. Baker, No. 2240, in this week's issue of FLIGHT, dated December 13, 1929.

A weekly supplement or page of FLIGHT devoted to early days of flying, with pictures to illustrate them, would fill a gap in many readers' history of flying, who could not take in earlier copies of FLIGHT because of expense and circumstances, such as age. I am, like your correspondent, keenly interested in flying and unfortunately unable to take part in it from a practical point of view, hence I would welcome a weekly page or two devoted to early aviation.

NORMAN E. NEVILLE

Fareham, Hants.

December 16, 1929.

[2248] With reference to the suggested "Aviation old Timers" feature in your columns—should you at any time act on this, I shall be pleased to place at your disposal anything I may have likely to be useful, in the way of pre-war aviation photographs, press cuttings or other matter.

Acton, W.3.

"ANOTHER HENDON OLD-TIMER"

December 9, 1929.

[We should be very glad to have assistance in this direction from all and any of those who have at their command interesting facts and photographs.—ED.]

FLYING BY INSTRUMENTS

[2249] A rather remarkable fact emerged from the last Wilbur Wright Memorial Lecture in connection with this still-debated question, and it might be well to emphasise the point more than has been done.

Out of 672 accidents to civil aircraft in U.S.A. in the second half of 1928 it was possible to analyse the causes of 90.55 per cent. of them. The heading "Instruments" shows a complete blank, so that out of the 608 analysed accidents it was not possible to attribute even a fraction of one as due to instruments.

In contrast to this it was found that 61.6 per cent. of the analysed accidents were due to errors of pilot. It is perhaps reasonable therefore to conclude that the pilot should have infinitely greater faith in his instruments than in himself.

W. E. GRAY

Edgware.

December 15, 1929.

ACCELERATION

[2250] In reply to Mr. W. E. Gray's queries in FLIGHT, of December 6: First, the matter of forces and accelerations. The normal acceleration of an aeroplane is produced by lift on the wings, and this acceleration induces inertia loads in

all parts of the structure. For instance, considered from the point of view of force balance, an increase of lift on the wings is partly balanced by an inertia load on the engine, but this inertia load can only be produced by the acceleration of the machine.

Secondly, the question of "net acceleration." The acceleration of a body is equal to the applied load divided by the mass of the body, or $\frac{Pg}{W}$. Now, although Mr. Gray tells us that "St. Paul's is still there," there are two forces acting on it, its weight and a reaction equal to the weight at its base, so that the upward acceleration of St. Paul's is $\frac{Wg}{W}$, or

i.e., and this is balanced by the acceleration, produced by the force we call gravity. Accelerations may be added vectorially and this is the case of an equal and opposite vector. We will now return to the lift referred to in the article in question. We had a force of 10 units applied to a weight of 5 units, and

this gives us an acceleration of $\frac{10}{5}g$, or $2g$. Now had the

applied force been 5 units we should have had the same state of affairs as exists at St. Paul's. While the acceleration produced by the weight (gravity) remains constant, the acceleration due to the applied load varies with the load. It is the acceleration in terms of gravity due to the applied load that is called a load factor, but the net acceleration is the difference between this and gravity.

A. E. RUSSELL

Bristol, December 6, 1929.

A GRIEVANCE

[2251] May I, through your columns, extend my sympathy to your correspondent, Arthur Crosse (letter 2243). I cannot agree, however, that flying in this country is being kept for the man with the money and the public school education. The man with the money certainly has an advantage, but I think that if one has exceptional ability in any direction and can "get there" a public school education becomes of secondary importance. It is well to remember that some of the world's greatest leaders have been people who have risen from very humble stations of life. I can appreciate Mr. Crosse's feelings, I have had them myself, but he must realise that there are few jobs going for pilots and hundreds of experienced applicants, and that all cannot be lucky. Let me make it clear that I am not a certificated pilot myself, although I have handled 'planes through the kindness of officers—public school men—under whom I had the pleasure of serving during the war. But since Bleriot crossed the Channel, I was then 14 years of age, it has been, and still is, my ambition to become a pilot-mechanic. If our Editor has kept records of his personal correspondence round about 1912 he will find an appeal from me for him to find work for me "on aeroplanes," 17 years ago! His search on my behalf proved fruitless, but his efforts were more than appreciated. My own efforts later met with success and from 1912 to 1915, when I joined the R.N.A.S., I had the pleasure of working with some of the pioneers of flying in this country. I repeatedly applied for a pilot's job during my service, and met with success four days before being demobbed! I returned to civil life full of renewed hopes, but was soon thinking as Mr. Crosse is thinking now, but I realised the position and took the first job that came my way that I could manage, and awaited an opportunity to return to aeroplanes. So far this has not presented itself, but I consider myself fortunate in having a job of uncertain duration and which is not the work I had hoped for. I am sure that "Lord This" and "Sir That" appreciate that there are hundreds of keen working men who would leap at the opportunity of becoming pilots, and that these two gentlemen would be only too pleased to support any form of encouragement to help us, but this encouragement is going to cost a lot of money, and who is going to foot the bill? There is little doubt as to who would be expected to do so! It is very unfortunate for us, but just the way of the world, and the way for the ambitious is strewn with obstacles which could be got over with money, and that's just it. But there is such a thing as luck, and who knows? I wish Mr. Crosse a full measure of good luck for the future, but do not let the state of affairs get you down. I feel sure he will understand the friendliness of my remarks and realise that there are a lot of us in the "same boat," and in conclusion the Compliments of the Season to all.

Bedford.

December 13, 1929.

PRE-WAR

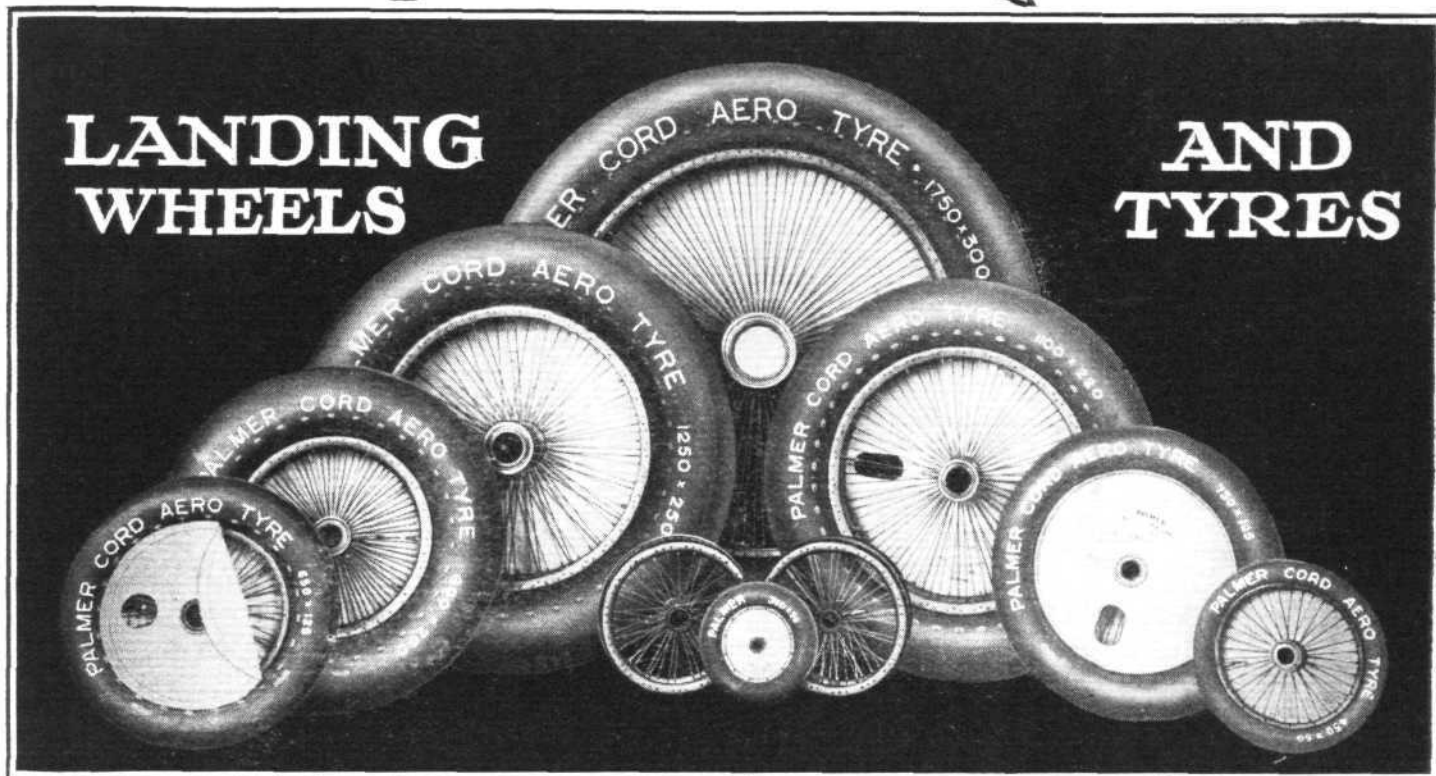


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"	195	130·	38·09	Central	"	179	178·	55·	Central	"	149	185·	80·	Central
300 x 60	16	111·12	25·4	Central	650 x 125	119	178·	55·	132/46	"	155	220·	66·67	Central
450 x 60	30	89·	31·75	Central	"	147	178·	55·	Central	900 x 200	107	185·	55·	Central
"	172	130·	38·09	Central	"	188	120·	34·92	Central	"	108	185·	55·	Central
575 x 60	21	160·	28·	Central	750 x 125	77	178·	44·45	132/46	"	128	220·	66·67	Central
"	180	150·	38·09	104/46	"	92	185·	55·	135/50	"	137	250·	80·	Central
"	186	120·	34·92	Central	"	95	185·	55·	Central	"	157	185·	80·	Central
"	190	150·	38·09	Central	"	99	178·	38·89	132/46	"	202	185·	60·32	Central
600 x 75	21	160·	28·	Central	800 x 150	161*	185·	55·	135/50	1100 x 220	134	220·	66·67	Central
"	180	150·	38·09	104/46	"	162*	185·	55·	Central	"	136	250·	80·	Central
"	186	120·	34·92	Central	"	163*	185·	66·67	135/50	975 x 225	192	185·	60·32	Central
"	190	150·	38·09	Central	"	169†	185·	55·	135/50	"	194	185·	55·	Central
700 x 75	78	178·	44·45	132/46	"	177	185·	55·	135/50	1100 x 250	364	220·	60·32	Central
"	79	178·	44·45	Central	"	183	185·	55·	Central	1250 x 250	314	250·	80·	Central
"	100	178·	38·09	132/46	"	211*	185·	60·32	135/50	"	154	304·8	101·6	Central
"	101	178·	31·75	132/46	"	"	"	"	"	1500 x 300	305	304·8	152·4	Central
"	196	178·	55·	Central	"	"	"	"	"	"	306	304·8	101·6	Central
600 x 100	188	120·	34·92	Central	1000 x 150	167	185·	55·	125/60	1525 x 325	197	304·8	101·6	Central
"	304	150·	38·09	104/46	"	174	250·	80·	Central	1750 x 300	139	400·	152·4	Central
"	333	120·	34·92	Central	"	182	185·	55·	Central	"	191	350·	150·3	Central
700 x 100	77	178·	44·45	132/46	"	187	220·	66·67	Central	1750 x 350	193	400·	125·	Central
"	92	185·	55·	135/50	"	201	185·	60·32	125/60	2000 x 450	363	500·	152·4	Central
"	95	185·	55·	Central	"	210	185·	60·32	Central					
"	99	178·	38·89	132/46										
"	112	150·	38·09	Central										

* Wheels Nos. 161, 162, 163, and 211 are of stronger type than the other wheels for 800 x 150 tyres. † Wheel No. 169 is fitted with Ball Bearings. Grease gun equipment is now a standard fitting on all wheels.

(A/NL)

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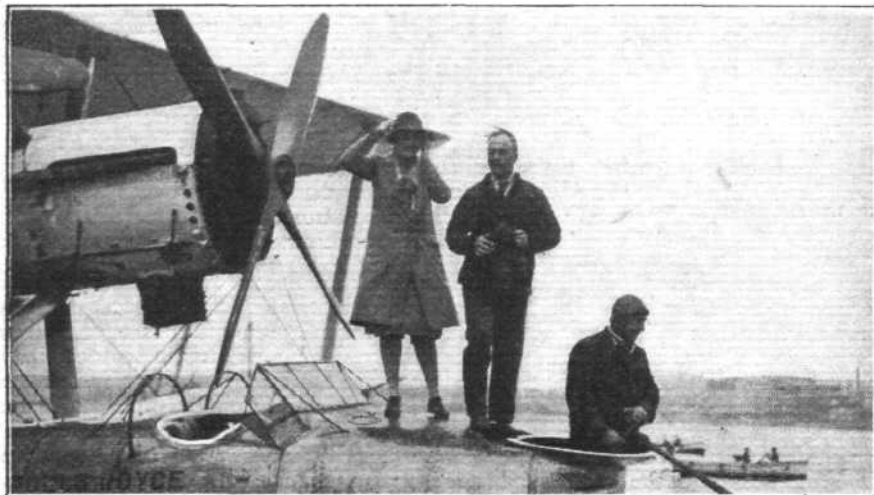
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THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS

REPORT of meeting of the Committee of the Royal Aero Club held at 3, Clifford Street, London, W.1, on Wednesday, December 11, 1929, at 5.0. p.m.

Present.—Lieut.-Col. Sir Francis K. McClean, A.F.C., in the chair; Griffith Brewer; Capt. H. S. Broad; Lieut.-Col. M. O. Darby, O.B.E.; Sqdn.-Ldr. C. J. W. Darwin; Maj. Alan Goodfellow; F. Handley Page, C.B.E.; Maj. H. A. Petre, D.S.O., M.C.; A. H. Downes-Shaw; H. E. Perrin, Secretary.

Election of Members.—The following new members were elected: John William Sefton Brancker, Cyril Frederick Dennis, Albert Peter Thurston, Flying-Officer Frederick Basil Tomkins, Flight-Lieut. Cyril Walter.

Aviators' Certificates.—The following Aviators' Certificates were granted:—

- 8887. H. L. Graham Milne, Phillips & Powis Fl. School.
- 8888. John C. Sellars, Lancashire Ae. C.
- 8889. Thomas A. McCulloch, Brooklands Fl. School.
- 8890. William N. McCulloch, Brooklands Fl. School.
- 8891. Norman D. Roe, Liverpool and District Ae. C.
- 8892. Whitney W. Straight, Haldon Fl. School.
- 8893. Denis R. Debes, Liverpool Ae. C.
- 8894. John S. Hutchinson, Newcastle Ae. C.
- 8895. Frank W. Lipscomb, Hampshire Ae. C.
- 8896. John Howie, Suffolk and Eastern Counties Ae. C.
- 8897. Martin L. McCulloch, London Ae. C.
- 8898. Robert T. Bower, Airwork Fl. School.
- 8899. Elsa E. Lindberg Lovell, De Havilland Fl. School.
- 8900. William L. Bowen, London Ae. C.
- 8901. Nora T. Trevelyan, Newcastle Ae. C.
- 8902. Walter E. Swann, R.A.F.
- 8903. Ian R. Campbell-Orde, Brooklands Fl. School.
- 8904. Stanley W. Green, Norfolk and Norwich Ae. C.
- 8905. Guy W. Woodhouse, Hampshire Ae. C.

- 8906. William D. T. Gairdner, Hampshire Ae. C.
- 8907. Charles Garay, National Fl. Services.
- 8908. Henry E. Burgess, Airwork Fl. School.
- 8909. Sydney H. Light, National Fl. Services.
- 8910. Charles H. Burge, National Fl. Services.
- 8911. Thomas J. Munro, Midland Ae. C.
- 8912. Thomas W. Wild, Midland Ae. C.
- 8913. Oliver Smethurst, Lancashire School of Aviation.
- 8914. Archibald R. McDougall, London Ae. C.
- 8915. Edward R. Green, National Fl. Services.
- 8916. Richard O. I. Muntz, London Ae. C.
- 8917. Richard Hayne, Phillips & Powis Fl. School.

Associated Light Aeroplane Clubs.—It was decided that members of associated light aeroplane clubs (*i.e.*, full flying members) shall be eligible for membership of the Royal Aero Club at an annual subscription of three guineas for so long as they hold current "A" or "B" licences.

Schneider Trophy Contest, 1931.—The recommendations of the Schneider Trophy Contest Committee regarding the regulations for the contest in 1931 were considered and approved for submission to the F.A.I. Conference in Paris on January 17, 1930.

F.A.I. Conference, Paris.—Lieut.-Col. M. O'Gorman was appointed delegate to represent the club at the Paris Conference on January 17, 1930.

International Competition for Touring Aircraft.—It was decided to hold a Conference with representatives of the aircraft industry and ascertain their views as to whether Great Britain should subscribe to the 1930 competition.

Offices: THE ROYAL AERO CLUB
3, CLIFFORD STREET, LONDON, W.1.
H. E. PERRIN, Secretary.

R.Ae.C., R.Ae.S. and S.B.A.C. Banquet

THE Royal Aero Club, in conjunction with the Royal Aeronautical Society, the Air League and the Society of British Aircraft Constructors, will hold a Banquet at the Savoy Hotel, on February 5, 1930. H.R.H. The Duke of York has kindly consented to be present. The chair will be taken by the Rt. Hon. Sir Philip Sassoon, Bart., M.P., the Chairman of the Royal Aero Club. Presentations will be made to the Schneider Team, and Certificates of Performances in connection with world's speed records will be presented to Supermarine Aviation Works, Ltd., Rolls-Royce, Ltd., Gloster Aircraft Co., Ltd., and D. Napier and Sons, Ltd., and also to the pilots, Squadron Leader Orlebar, Flying Officer Atcherley, Flying Officer Waghorn and Flight Lieutenant

Stainforth. The Gold Medal of the Royal Aero Club will be presented to Captain C. D. Barnard and an illuminated address to the Duchess of Bedford, in recognition of their flight from England to India and back. Application for tickets, £1 1s. each, from the members of the above societies, should be made to the secretary, Royal Aero Club, 3, Clifford Street, London, W.1. Members may be accompanied by ladies.

Royal Aero Club Christmas Closing

THE club will be entirely closed from 7.0 p.m. on Tuesday, December 24, to 8.0 a.m. on Friday, December 27. The club will also be closed on Saturday, December 28, from 3.0 p.m. to midnight for the Club Staff Christmas Party.

IN PARLIAMENT

Civil Aviation Training Scholarships

MAJOR POLE, on December 5, asked the Secretary of State for India particulars in respect of the scheme for training Indians in civil aviation by means of Government scholarships in this country; and the number of scholarships which have been granted under this scheme since its inception?

Mr. Benn: The scheme, which is estimated to cost approximately £15,900 over a period of seven years, provides for 10 three-year scholarships being granted as follows:—1927, 1; 1928, 4; 1929, 3; 1930, 2.

The course of instruction comprises:—

- (1) Flying training at a flying school;
- (2) A post-graduate course of instruction in aeronautics at the Imperial College of Science and Technology, extending over 18 months;
- (3) Nine months' practical workshop training in aircraft engine and repair shops and in engine inspection; and
- (4) Attachment to the Civil Aviation Traffic Control Department at Croydon Aerodrome for a period of three months.

In accordance with the scheme, eight students are at present under training in this country.

Indian Air Mail Services

Mr. Benn, Secretary of State for India, on December 9, in answer to Major Pole, said the sum of £375,000, which represented the estimated cost of subsidies for the operation of trans-India air-mail services during the four years 1929-30 to 1932-33, included provision for the contemplated extension of the air-mail service not only to Delhi but from Delhi to Calcutta.

Singapore Base

MAJOR GLYN on December 11 asked the Under-Secretary of State for Air what sum of money has been expended to date on the air base at Singapore; what is the estimated further expenditure required to complete the base; whether the object of this new base is the defence of the naval base or has an independent objective; what is the proposed strength of the Air Force to be maintained permanently at Singapore; and whether any change has been made as a result of the decision of the Admiralty to suspend further work on the naval base?

Mr. Montague: As regards the first two parts of the question, the amount expended to date on the air base at Singapore is approximately £270,000, and the sum required for its completion, £300,000. As regards the third part, the facilities which are being provided will serve, not only for local defence, but also

for the maintenance of British air communications in the Far East, and for the shore training and repair of equipment of air units allocated to naval forces in those waters. As regards the fourth part, the strength of the Air Forces which will be normally maintained at Singapore as at present contemplated, is one squadron of land machines and one squadron of flying-boats. These numbers are exclusive of any Fleet Air Arm units which may from time to time be disembarked there. The answer to the last part of the question is in the negative. So far as there may be alterations in the policy of His Majesty's Government, they will be purely of a detailed character.

Sea-Going Aircraft and Parachutes

CAPTAIN MACDONALD (for Captain Balfour) asked if parachutes are yet adapted for use on and compulsory equipment for pilots and crews of sea-going aircraft and flying-boats?

Mr. Montague: No, not as yet. A good deal of difficulty has been experienced in devising a form of quick release gear which will enable the wearer to free himself from the parachute harness if he falls in the water and which complies with the other special requirements for sea-going aircraft. A new form of such gear is under trial at present and I am hopeful that it will prove satisfactory.

Netherlands Air Mails

MAJOR POLE, on December 16, asked the Secretary of State for India whether he had received any representation from the Netherlands Government in respect of the facilities provided by the authorities in India for the machines working the Dutch air-mail route to the East Indies; what steps the Government of India have taken to investigate this matter; and what action has been taken, or it is proposed shall be taken, to meet these complaints?

Mr. Benn: Requests were received from the Netherlands Government for facilities to be granted in India for certain trial flights with a view to the eventual institution of a regular service. The Government of India agreed to grant facilities for trial flights during 1929, but regretted their inability to permit the use of the Indian air route for a permanent service until the necessary ground organisation was complete. The position has been fully explained to the Netherlands Government. The Secretary of State for Foreign Affairs has just received a communication from the Netherlands Minister in London asking that facilities for further trial flights should be granted in 1930. This request involves consultation with the Government of India, and immediate consideration is being given thereto.

D.H. WORKS ANNUAL DINNER

THE Works Annual Dinner of the De Havilland Aircraft Co., Ltd., was held at the Wharnccliffe Rooms of the Hotel Great Central, on Saturday, December 14, Mr. Alan S. Butler being in the chair. After the loyal toast, proposed by the chairman, Mr. R. Malcolm proposed "The Directors and Management," and recalled that their managing director was the holder of two world's records.

Mr. A. S. Butler, in responding, said that since he addressed them last year the company had been turned into a public company, its shares being listed on the London and New York Stock Exchanges, and as the annual general meeting had not yet been held, he would not be able to disclose quite as many figures as he did last year. Continuing, Mr. Butler said: "You, who are in the heart of things, possibly may not realise how hard it has been to sell our products. We have had first to overcome an almost universal prejudice against flying, and it is due to the enthusiasm and keenness which characterises everyone of you that obstacles which have at times appeared insurmountable have been overcome."

General progress throughout the year had been extremely satisfactory, and during the last twelve months sales had increased by 75 per cent. as compared with the previous year. "Moth" sales had increased by nearly 100 per cent. Although employment in the works had not been quite as great, they had to remember that nearly all business encountered seasonal depressions, particularly those which, like theirs, were regarded as largely luxury articles. The world-wide extent of their trade, however, tended to make this less severe, and the board was looking forward to being able to employ more people in the coming year.

The production of the "Gipsy" engine had gone ahead in a very satisfactory way, and he thought they could congratulate themselves on this highly successful branch of their business. The record that this engine had established by doing 600 hours in the air, or about twice around the world in distance, reflected great credit on its designer, Major Halford. The "Hawk Moth" was completed in its final form during the year, and one of these machines had gone to Canada for demonstration purposes. The first experimental "Puss Moth" had now been thoroughly tested in the air, and as he had flown it a lot himself he could say personally and honestly that there was no doubt that the machine had a wonderful future. "To fly this machine," Mr. Butler said, "gives one an entirely new feeling and outlook on flying."

The de Havilland School had again done excellent work, once more exceeding its previous year's figures in hours flown.

Of the subsidiary companies, Australia had had a good year, the principal item of interest being the delivery of four "Hercules" machines to Western Australia Airways. The D.H. Aircraft of Canada had also completed a successful year and had been turned into a public company, with the English company's money and Canadian money side by side to finance it. With this Canadian interest the company would be assured of whole-hearted Canadian support. In America the Wright Aeronautical Corporation had got the "Gipsy"

in production. The Moth Aircraft Corporation had been brought into the Curtiss-Wright group. During the year a branch had been opened in India, thus putting another link in the Empire chain.

Mr. Butler then read cables from the Australian, Indian and Canadian branches.

They were entering upon a period of intense competition and he was sure that the board would not call in vain for still more of that enthusiasm and *esprit de corps* which had never been found lacking in the past. It was vital also that they should have greater freedom in design and manufacture, and in their fight for the removal of unnecessary restrictive legislation, they would be aided by their reputation for turning out a high-class article.

Turning to more domestic matters, Mr. Butler said it was a great personal pleasure to see the strides the Superannuation Fund had made, the amount contributed by members being well over double that of the previous year, while the sum invested in the fund was now three times what it was three years ago. He would also like to congratulate those whose energy had supplied the long-felt want of a sports ground, and those who had done such splendid work in connection with the Hospital Savings Association.

Mr. Butler then recalled some of the outstanding "Moth" successes during the past year.

Captain Geoffrey de Havilland, who was greeted with deafening applause, said the success of the company was due to the enthusiasm of the staff. He fully appreciated the very good show they had put up and thanked them all very sincerely.

Mr. Hearle said that he perhaps more than anyone else of the board appreciated in detail the excellent work which everyone had done during the year. Civil aviation was growing quickly, and what worried him was the thought that shortly there would not be enough skilled engineers. With the experience of the de Havilland Aircraft Co. it was natural that operating firms should come to them for good engineers. They had started an educational section, and already this had done very well. Many students had gone for their ground engineer certificate, and thanks to Mr. Eden they had got good results. He asked them to do their best to extend help and courtesy to every visitor to the works, so that visitors would want to come again.

Mr. Radford said the workers were as anxious to make the firm a success as was the management, and they looked forward to this annual opportunity to hear how things were going. The workers all read newspapers, and the first thing they looked for was news items concerning "Moths."

Mr. Nixon proposed the toast of "The Guests," and this was responded to by Mr. Newport, who said he had occasion to visit a large number of factories, and had never known one where more was done for the workers than at Stag Lane. He thought this was at the bottom of the success of the de Havilland Aircraft Co.

The rest of the evening was spent in talking "shop" and in listening to Mr. Jack Courtney's Concert Party.

WESTLAND AIRCRAFT WORKS SOCIAL

ON Saturday, December 7, 1929, the employees of the Westland Aircraft Works foregathered at the Yeovil Town Hall for a social evening. Mr. R. A. Bruce, Managing Director, and Mrs. Bruce, were supported on the platform for the opening speeches by Mr. Gibson (Works Manager), Mr. Gaunt (well known as the Secretary of the Westland Aircraft Society, the Yeovil branch of the Royal Aeronautical Society), Mr. Davenport (Chief Designer), Flt.-Lt. Paget (Chief Pilot), Mr. McLean (Contracts and Buying), Messrs. Norton and Watts (A.I.D.) and Messrs. Pitcher, Sweetman, Dalwood, Carey, Rowe, Cook, Lower, Pomeroy, Nicholls, Millman and Goswell.


In opening the proceedings Mr. Bruce said that this was the first occasion of its kind which was devoted entirely to the Westland Aircraft Works (the Westland Works is, of course, a branch of Petters, Ltd., the well-known oil engine manufacturers), and he hoped it would prove a great success. It was gratifying to him to look back and note the progress which had been made since the early days when the Westland Aircraft Works was first started during the early part of the war, in 1915. In those days he himself with Mr. Davenport would lay out the fuselages. He was glad to see a few of the oldest hands still with the firm—he saw Mr. Davenport, Mr. McLean, Mr. Dalwood and one or two

others who had been with him from the start. He felt that everyone had a great interest in the products of the firm—he personally felt it a privilege to be engaged in the work of such absorbing interest as the manufacture of aeroplanes. They all had dull tasks to perform at times, but even the office boys and typists would feel that they were privileged in working in connection with the production of machines of such wonderful scientific and general interest.

Referring to the Westland Aircraft Society he said that he considered this an extremely useful meeting ground on which they could meet and learn of the developments in general aeronautical matters, while the meetings were a valuable means of increasing the knowledge of all members. From this aspect the Society was performing a very helpful function for the firm, and he hoped everybody would join. He would ask them to drink to the Westland Aircraft Works.

The toast was drunk with enthusiasm followed by that of Mr. and Mrs. Bruce, which was rendered with musical honours. Mr. Bruce replied with a toast to the employees, and the musical programme then proceeded. After a variety of songs, humorous turns, etc., by local artists the floor was cleared for dancing, which lasted until midnight.

Everybody turned up in the best of spirits and the evening was voted a great success.



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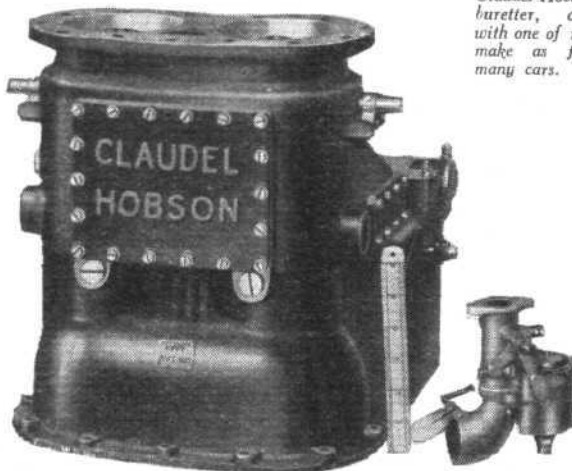


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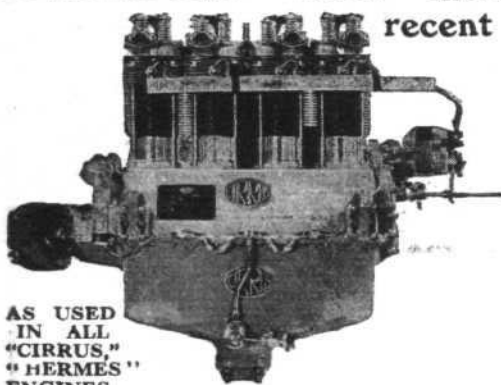
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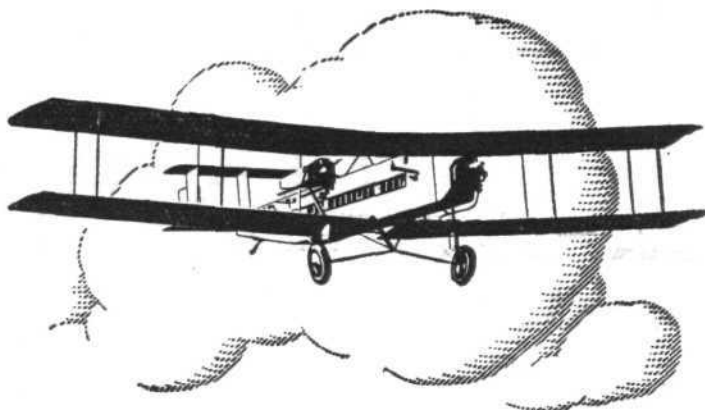


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THE ROYAL AIR FORCE

General Duties Branch

Lieut. J. H. F. Burroughs, R.N., is re-attached to R.A.F. as Flying Officer, with effect from Dec. 5, 1929, and with seniority of June 16, 1924. Pilot Officer R. C. I. Pearce is promoted to rank of Flying Officer (Nov. 25). Sqdn.-Ldr. F. Fowler, D.S.C., A.F.C., is placed on half-pay list, scale A (Dec. 10). The following Flight-Lieutenants are placed on the retired list at their own request:—A. T. Laing (October 20); W. V. Simons (Dec. 11).

The following are transferred to Reserve, Class A:—Flight-Lieut. A. J. R. Moss, Flying Officer B. C. Mason (Dec. 9); Flying Officer A. L. Mortimer (Dec. 11).

Chaplains Branch

The Rev. R. M. Bankes-Jones, M.A., is promoted to the relative rank of Wing-Commander (Dec. 3).

ROYAL AIR FORCE INTELLIGENCE

General Duties Branch

Group Captain I. G. V. Fowler, A.F.C., to R.A.F. Depot, Uxbridge, to command, 1.12.29.

Wing Commanders: R. M. Bayley, D.F.C., to R.A.F. Depot, Uxbridge, pending course at Imperial Defence College, 2.11.29. V. Gaskell-Blackburn, D.S.C., A.F.C., to Sch. of Balloon Training, Larkhill, to command, 21.11.29. D. G. Donald, D.F.C., A.F.C., to Sch. of Naval Co-operation, Lee-on-Solent, to command, 30.11.29.

Squadron-Leaders: J. L. Vachell, M.C., to No. 8 Sqdn., Aden, 14.11.29. L. J. Maclean, M.C., to No. 1 Sch. of Tech. Training (Apprentices), Halton, 10.11.29. B. E. Baker, D.S.O., M.C., A.F.C., to No. 32 Sqdn., Kenley, 27.11.29. R. B. Mansell, O.B.E., to Air Ministry (A.M.S.R.), 19.12.29. P. G. Scott, to No. 29 Sqdn., North Weald, 25.11.29. F. O. Soden, D.F.C., to No. 14 Sqdn., Palestine, 22.11.29. L. G. le B. Croke, to R.A.F. Depot, Uxbridge, 27.11.29.

Flight-Lieutenants: G. A. Simons, to No. 1 Sqdn., Tangmere, 1.12.29. J. B. Barrett, to Armoured Car Wing, Iraq, 23.11.29. C. D. Pyne, to No. 25 Sqdn., Hawkinge, 19.11.29. W. C. P. Bullock and H. M. Mellor, to R.A.F. Depot, Uxbridge, 27.11.29. T. O. Clogston, to No. 1 Air Defence Group, H.Q., 29.11.29. E. J. Protheroe, to R.A.F. Depot, Uxbridge, 22.9.29. L. Martin, to Sch. of Naval Co-operation, Lee-on-Solent, 2.12.29. C. E. Horrex, A.F.C., to No. 58 Sqdn., Worthy Down, 9.11.29. C. A. Bouchier, D.F.C., to R.A.F. Depot, Uxbridge, 9.11.29.

Flying Officers: C. A. Pearson, to R.A.F. Depot, Uxbridge, 11.11.29. F. L. Truman, to No. 31 Sqdn., India, 6.11.29. W. Anderson, to R.A.F. Base, Calshot, 18.11.29. T. H. Moon, to Aeroplane and Armament Experimental Estab., Martlesham Heath, 2.12.29. R. C. Greenhalgh, to No. 99 Sqdn., Upper Heyford, 27.11.29. J. E. W. Bowles, J. A. T. Ryde, H. W. Charnock, R. J. A. Ford, and R. J. Drummond, to R.A.F. Depot, Uxbridge, 27.11.29.

Pilot Officers: C. B. Field, to No. 14 Sqdn., Palestine, 19.11.29. N. R. G. Hunter, to No. 45 Sqdn., Middle East, 18.11.29. A. H. Abbott, to No. 8 Sqdn., Aden, 14.11.29. R. W. Wallace, to No. 216 Sqdn., Middle East, 14.11.29. W. H. E. Tew, to No. 216 Sqdn., Middle East, 14.11.29. K. W.

PERSONALS

Married

CAPTAIN CHARLES DOUGLAS BARNARD, the airman who piloted the Duchess of Bedford on her flight to India, was married, on December 9 at Paddington, to Mrs. MELITA ERNA MAY.

To be Married

The engagement is announced, and the marriage will take place early in January, between Flying Officer CHARLES WILLIAM GORE, R.A.F., son of Lieut.-Col. C. W. Gore (late The Duke of Wellington's Regt.) and Mrs. Gore, of 30, Marlborough Road, Donnybrook, Dublin, and FRANCES CATHERINE, eldest daughter of Maj. O. A. CHAMBERS (late The Royal Warwickshire Regt.) and Mrs. Chambers, of Manor House, Sandgate, Kent.

The engagement is announced between HORACE R. HERN, D.F.C., youngest son of the late J. H. Hern, and of Mrs. Hern, Hillersdon Avenue, Barnes, and MARY P. DAVIES, L.D.S., R.C.S. Eng., only daughter of Mr. and Mrs. P. Percival Davies, Havant, Hants.

A marriage has been arranged, and will shortly take place, between CLAUDE BERNARD RAYMOND PELLY, R.A.F., eldest son of the Rev. D. R. Pelly, D.S.O., and Mrs. Pelly, of Woolbeding Rectory, Midhurst, and MARGARET OGILVIE SPENCER, daughter of Mr. and the late Mrs. E. J. Spencer, of 3, Grand Avenue, Hove.

The engagement is announced between FLIGHT-LIEUTENANT HENRY WALKER, M.C., D.F.C., only son of the late Dr. Muirhead Walker and Mrs. J. J. Roberts, of Buenos Aires, and ELEANOR LOUISE, only daughter of Mr. and Mrs. CLARK E. DANIELS, of Madison, Wisconsin, U.S.A.

NO. 1 AIR DEFENCE GROUP

No. 1 Air Defence Group comprises the Special Reserve Squadrons of the Royal Air Force, the squadrons of the Auxiliary Air Force, and the office of the Superintendent of the R.A.F. Reserve. The Special Reserve squadrons are usually referred to as "cadre" squadrons because they contain a fairly high percentage of regular personnel, and they are formed with this cadre, while non-regular personnel is needed to bring them up to war establishment. The squadrons of the A.A.F. are raised by County Territorial Associations and have a small percentage of regular officers and airmen.

Air Commodore E. L. Gerrard, C.M.G., D.S.O., who has been commanding this group, is retiring, and is to be succeeded by Group Captain W. F. MacNeece Foster, C.B.E., D.S.O., D.F.C.

Group Captain Foster was educated at Cheltenham and Sandhurst. He entered the Royal West Kent Regiment in

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

D. C. Beauchamp is granted a comm. in Special Reserve as a Pilot Officer on probation (Oct. 14). Pilot Officer E. W. Mackay is promoted to rank of Flying Officer (Dec. 7). The following Flying Officers are transferred from Class A to Class C:—R. S. Walter (Nov. 24); W. F. Warner (Aug. 24); E. M. S. Spence (Nov. 17).

Flying Officer J. de la P. B. Preston is removed from service (Nov. 28).

AUXILIARY AIR FORCE

General Duties Branch

No. 600 CITY OF LONDON (BOMBER) SQUADRON.—Flight-Lieut. C. G. Jenyns resigns his commission (Nov. 19). No. 601 COUNTY OF LONDON (BOMBER) SQUADRON.—The following to be Pilot Officer:—R. Y. Sanders (Aug. 8). No. 605 COUNTY OF WARWICK (BOMBER) SQUADRON.—The following to be Pilot Officer:—B. P. A. Vallance (Oct. 12).

Niblett, to No. 36 Sqdn., Donibristle, 25.11.29. I. B. Newbigging, to No. 36 Sqdn., Donibristle, 25.11.29. W. S. C. Adams, to R.A.F. Depot, Uxbridge, 15.11.29.

Accountant Branch

Flight-Lieutenants: E. W. Horncastle, to R.A.F. Depot, Uxbridge, 13.11.29. L. de L. Leder, to No. 4 Flying Training School, Middle East, 19.11.29.

Flying Officer J. P. Cave, to No. 14 Sqdn., Palestine, 14.11.29.

Medical Branch

Squadron-Leaders: T. C. St. C. Morton, M.D., M.R.C.P., D.P.H., D.T.M. & H., to R.A.F. General Hospital, Iraq, 30.10.29. R. H. Bebb, O.B.E. (Dental), to R.A.F. General Hospital, Iraq, 30.10.29.

Flight-Lieutenants: T. J. D. Atteridge, to H.Q., R.A.F., Middle East, 29.11.29. R. E. Edwards (Dental), to H.Q., R.A.F., Middle East, 29.11.29. J. E. Foran, M.B., to Marine Aircraft Experimental Estab., Felixstowe, 22.12.29. R. Boog-Watson, M.B., D.P.H., to H.Q., Iraq Command, 22.11.29. D. A. Wilson, to H.Q., Iraq Command, 22.11.29. J. C. Neely, B.A., to H.Q., Iraq Command, 22.11.29. J. Parry-Evans, to Palestine General Hospital, 4.11.29. H. Penman, M.B., to No. 6 Sqdn., Middle East, 1.11.29. E. P. Carroll, to No. 4 Flying Training Sch., Middle East, 1.11.29. W. Gamblen (Quartermaster), to R.A.F. General Hospital, Iraq, 30.10.29. C. W. Coffey, to R.A.F. Base, Calshot, 6.12.29. R. Thorpe, to No. 1 Sch. of Tech. Training (Apprentices), Halton, 9.12.29. W. Heron, M.B., to Station H.Q., North Weald, 6.12.29.

Flying Officers: G. O. Williams, B.Sc., to Station H.Q., Upper Heyford, 9.12.29. D. D. Watson, M.B., to No. 5 Flying Training Sch., Sealand, 9.12.29. W. J. Cotter, M.B., to Princess Mary's R.A.F. Hospital, Halton, 26.11.29. P. J. McNally, M.B., to H.Q., Iraq Command, 22.11.29. C. Crowley, M.B., to No. 14 Sqdn., Palestine, 29.10.29. J. Kemp, M.B., to R.A.F. General Hospital, Iraq, 30.10.29.

NAVAL APPOINTMENTS

The following appointments were made by the Admiralty on December 14:—Lieutenants, R.N., Flying Officers R.A.F.—A. R. Baines, to *Furious* (Dec. 16), M. T. Cowin, to *Furious* (Dec. 17), and R. W. Wicks, to *Courageous*. Sub-Lieutenant R.N., Flying Officer R.A.F.—L. C. Rowe, to *Courageous*.

The R.A.F. Squash Rackets Championship

Wing-Commander F. L. ROBINSON (holder) won the Royal Air Force Squash Rackets Championship at Queen's Club, West Kensington, on December 4, beating Flying Officer F. L. Downing in the final round by three games to none (9-2, 10-8, 9-3). This is only the second of three championships, and Wing-Commander Robinson is still, as he was last year, in a class by himself in his Service.

R.A.F. Fencing

SALLE BERTRAND beat the Royal Air Force Fencing Union at 1A, Tenterden Street, on December 6, in a three-weapon match with foil, *épée*, and sabre, by 10 defeats to 17. This was a fine performance on the part of the Salle, for Sqdn.-Ldr. F. G. Sherrieff, twice amateur foil champion of Great Britain was making one of his rare appearances this season for the R.A.F., and with him to lead them they are a powerful combination with all weapons.

Surveying Officers' Courses

ARRANGEMENTS have been made with the Air Ministry for the following meteorological courses for surveying officers:—

One week's course of instruction in recent developments of meteorology. The course commences on the Monday of any week at 10 a.m., and will be available for not more than one officer at any one time. He will be nominated by the Hydrographer of the Navy. A four weeks' course in meteorology for senior surveying officers (*i.e.*, first-class assistants) who show special aptitude for the work. The courses will be held during the period November to March each year, and applications for them should be made to the Admiralty through the usual channels.

Foreign Decoration

THE King has given authority for the wearing of the following decoration: Lieutenant Robert Alexander Kilroy, R.N., of the British Naval Aircraft Carrier *Eagle*, Cross of the First Class of the Order of Naval Merit, conferred upon him by the King of Spain in recognition of valuable services.

1909 and learnt to fly in 1913. On the outbreak of war he went to France as a flying officer in No. 3 Squadron, which was commanded by Major John Salmond. At that time he was known as Lieut. MacNeece, as he did not assume the surname of Foster until after the war. He returned to his regiment, however, until the spring of 1915, when, somewhat curiously, he was given a commission in the R.N.A.S. and did duty in kite balloons. In September, 1915, he returned to the R.F.C. as a flight commander. Once during the war his balloon was shot down in flames. He made a parachute jump, but was injured in landing. When the R.A.F. came into being on April 1, 1918, he had reached the rank of lieutenant-colonel, and in 1919 he was given a permanent commission as wing commander. Since the war he has served in the Middle East and Iraq, and recently has been British Air Representative with the League of Nations.

SIDEWINDS

The Prince of Wales

ONE of the best paintings that we have seen of the Prince in connection with flying matters has just been published in the issue of the *Illustrated London News* for December 14. Mr. G. H. Davis, the artist responsible for this picture has not fallen in to the pitfall, which catches so many artists who tackle aviation subjects, and his technical detail is excellent without being obtrusive; his choice of background, the Castle of Windsor is really a masterpiece, and his treatment of it shows that he has an excellent eye for histrionic effect.

Signed artist's proofs of this picture are being issued separately.

"Technical Talks"

SELDOM, if ever, can the ingenuity of Heath Robinson have been used to such purpose as it has been in illustrating the booklet entitled "Technical Talks," which tells the reader all he can want to know about the lubricating oils produced by Alexander Duckham & Co. Such a combination of creative illustration, with a strong sense of humour running through it, and really informative text, makes the book the most readable that it has been our lot to see.

An Interesting Booklet

THE Hoyt Metal Co. issue a very interesting little quarterly called the "Notched Ingot," which will be sent free to those interested on receipt of a postcard. The contents are varied, and as may be imagined, there are a lot of articles of great interest to users of aircraft. General matters are covered in a bright manner, and practical features such as hints on re-lining bearings are given.

Benzole Mixtures and their Marketing

IN view of the increasing popularity of benzole mixtures as fuel for aircraft engines the following notes received from the National Benzole Co. should be of interest.

A meeting of a small Committee of the International Conference of Benzole Producers was held at Bochum, Westphalia, on Thursday, December 12. The present conditions of the market were reviewed, and the meeting was followed by a visit to the Research Laboratories of the German Benzol Verband.

The press has attached undue significance to the aims and objects of the First International Conference of Benzole Producers recently held in Paris.

It was never the intention to form an International Combination in the manner which has been suggested by a section of the press. The meetings have for their object the periodical exchange of views with regard to the best method to be employed in marketing and encouraging the use of benzole as a motor fuel in all countries, and the standardisation of benzole specifications.

Both English and German benzole producers already have their separate organisation for marketing benzole, which is sold mainly in the form of a blended mixture.

The marketing organisation in this country, which is owned and controlled entirely by the Producers of British Benzole, is the National Benzole Co., Ltd., and the form in which the British benzole is sold is as an admixture branded as National Benzole Mixture.

The use of benzole as a motor fuel is becoming increasingly popular in both England and Germany.



Types of the latest sheepskin flying boots, fitted with lightning fasteners, which are now kept in stock by D. Lewis, the tailor and outfitter of 124, Great Portland Street, London, W.1.

IMPORTS AND EXPORTS

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910.)

For 1910 and 1911 figures see FLIGHT for January 25, 1912. For 1912 and 1913, see FLIGHT for January 17, 1914.

For 1914, see FLIGHT for January 15, 1915, and so on yearly, the figures for 1927 being given in FLIGHT, January 19, 1928.

	Imports.		Exports.		Re-exports.	
	1928.	1929.	1928.	1929.	1928.	1929.
Jan.	£1,220	£2,852	£157,598	£74,307	£330	£100
Feb.	£1,772	£6,532	£118,622	£195,369	£345	£2
March	£4,805	£1,210	£125,901	£204,664	£1,307	£902
April	£2,904	£5,816	£134,126	£186,477	£3	£115
May	£2,513	£4,706	£118,804	£243,549	£640	£1,243
June	£5,916	£9,304	£86,245	£144,817	£1,317	£750
July	£2,025	£6,961	£108,746	£139,695	£521	—
August	£2,566	£16,706	£97,303	£160,625	£100	£4
Sept.	£4,240	£510	£72,475	£237,303	£3,183	£9,686
Oct.	£6,098	£6,226	£77,027	£297,879	£315	£1,370
Nov.	£3,825	£5,993	£115,219	£117,858	£1,615	£24,063
	37,884	66,816	1,212,066	2,002,543	9,676	*37,425

* This total as given is in accordance with the Governmental Trade accounts, although this total does not agree, as will be seen, with the Government items as given each month.

PUBLICATIONS RECEIVED

The Air Travellers' Guide to Europe. By Capt. N. Macmillan, M.C., A.F.C. London: Gerald Duckworth and Co. Price 10s. net.

Aeronautical Research Committee Reports and Memoranda: No. 1199 (Ae. 360).—Skin Friction and the Drag of Streamline Bodies. By Prof. B. M. Jones, A.F.C. Dec., 1928. Price 9d. net. *No. 1245 (E. 31).—Fuel Flowmeters Designed to Measure Mass Flow.* By P. S. Kerr. Jan., 1929. Price 1s. net. *No. 1262 (Ae. 411).—The Application of the Servo Principle to Aileron Operation.* By A. S. Hartshorn. March, 1929. Price 9d. net. H.M. Stationery Office, Kingsway, London, W.C.2.

The South American Handbook, 1930. Edited by H. Davies. Trade and Travel Publications, Ltd., 14, Leadenhall Street, London, E.C.3. Price 2s. 6d. net. Post free 3s.

The Navigation of Aircraft. By Logan C. Ramsey. The Ronald Press Co., New York, U.S.A. London: Simpkin, Marshall, Ltd. Price 20s. net.

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(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

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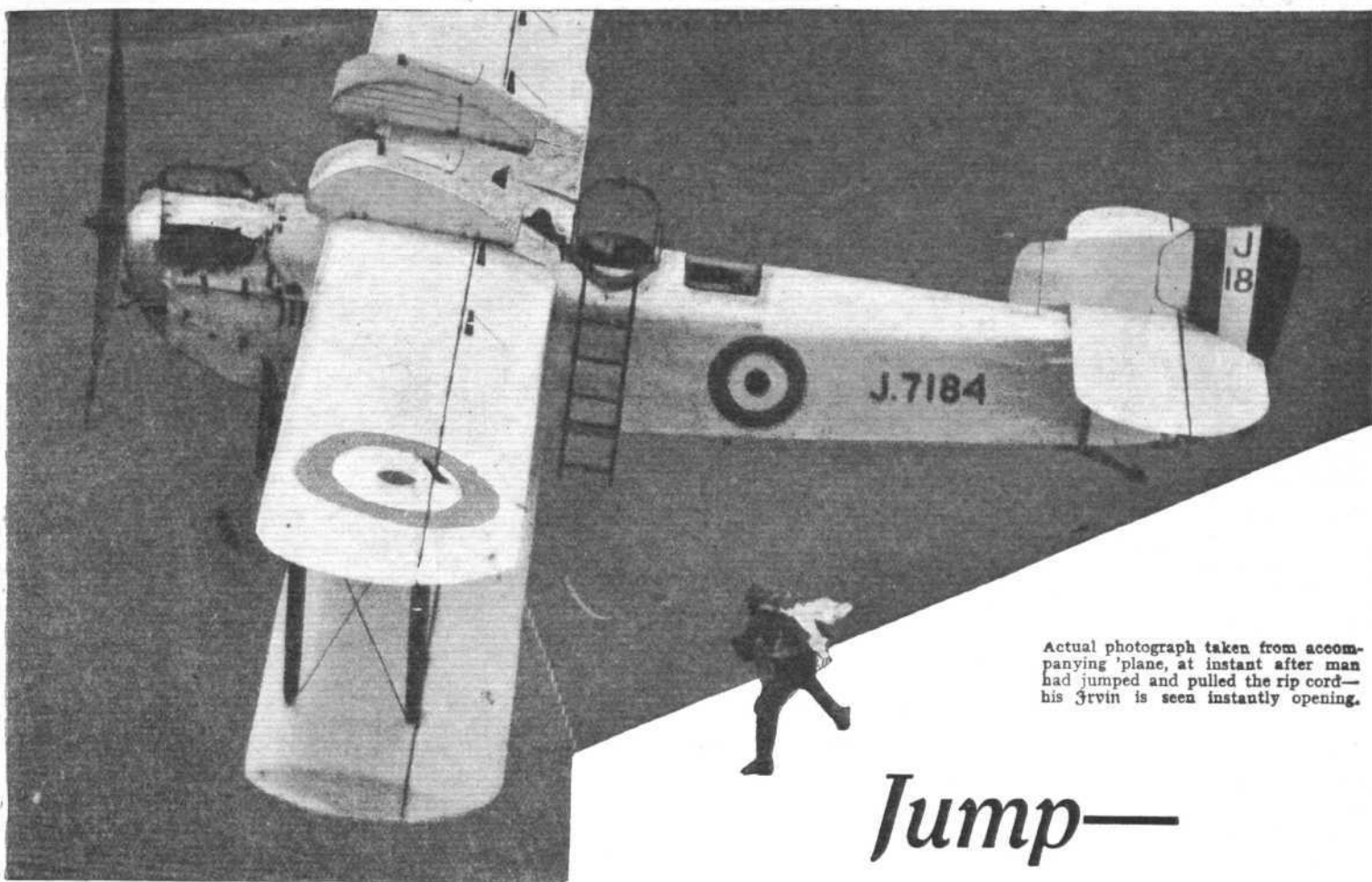
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